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Greenhouse for October.

IF any pot plants remain outside, have them housed at once. We may expect sharp night frosts and heavy rains at any time after this, which would damage even the most hardy plants in pots. The house may be now arranged for the winter, so far as regards the larger plants. See that all pots are clean and the surface soil renewed. It gives the plants a neat appearance and is also of benefit. Do not crowd the plants; it is better to weed out some of the most useless and throw them away, than to spoil the effect by throwing all away for the sake of keeping a few which are of little or no use. If plants are in health they become larger each year, and necessarily occupy more space, so that where houses are limited, some plants must be sacrificed each year, and in most instances with advantage. Shading should be generally dispensed with by this time, except over such plants as delicate Ferns and Marantas or tender flowering plants which are wished to last as long as possible.

Chrysanthemums of the late flowering varieties, such as Laciniatum, are useful for cut flowers if protected from frost, and look well mixed with other greenhouse plants, but if short of room, can be protected in a cold frame. The plants are hardy, but a moderate frost spoils the flowers.

Pot Roses must be protected from sharp frosts and heavy rains. A few of the Tea and China varieties, which are well established, should be placed in a warm part of the house for early flowering, the remainder can be protected in a cold frame, and if the pots are plunged, will not require water for months.

Climbers on roof must be cut in considerably if they have been allowed to grow freely during the summer. At this season the shade would not be desirable.

Bulbs for flowering in pots during the winter and spring should be obtained at once and potted, for unless the pots are well filled with roots before the tops commence to grow, the flowers will be poor. Single varieties of both Tulips and Hyacinths are best for very early flowering, but the small Roman Hyacinth is the best for flowering from November to January. If Hyacinths are required in large quantities for cut flowers, the most

simple plan is to place a number of bulbs in boxes of soil to be treated the same as pots; boxes occupy much less room, but when only required for greenhouse or room decorations, pots are most useful, while glasses are the neatest for rooms only, and require no soil; any lady can attend to them without soiling her hands. Of late years there have been very tasty hyacinth glasses manufactured, which are great improvements on those formerly used. We place a small lump of charcoal in each glass, it prevents the water from becoming unpleasant, and the only other attention required is to add a little more water occasionally, for after the roots become active, they absorb a considerable quantity. A pinch of guano in each glass just before the flowers open, adds to the size and color of the bloom; this is not desirable unless the glass is opaque. The charcoal prevents any unpleasant smell. When potting bulbs, use six-inch pots for hyacinths, and place a single bulb in centre of each pot with about a third of the bulb above the level of the soil; the soil requires making quite firm in the pots; if this is not done the bulb will be often lifted out of the pot when it commences to root freely. Tulips are best potted fine bulbs in from four to six-inch pots according to the size of bulbs; when a large quantity is grown, it is a good plan to adopt the system of the growers for the London market; that is, to place a number of bulbs of one variety in shallow boxes, and to grow them in boxes until the flower stem is considerably advanced, then shake them carefully out and pot into five-inch pots, selecting those equally advanced to place together in a pot, and also in each batch of pots for market, so that when seen together in Covent Garden market, each pot is the exact copy of its neighbor, so that no selecting is required to pick out the most advanced or the best bloomed pot full. This is especially serviceable for market, for under the best management it is usual to find some bulbs in the same pot several days more advanced than others, which gives the pots an unequal appearance, especially early in the season when the bulbs are forced forward in the heat; the late ones, which come in flower naturally in a low temperature, generally open more equally.

Crocuses are best grown in fancy pots or pans; the old-fashioned pot, shaped like hedgehog, is well enough; the young buds peeping through the holes representing the spine, or where baskets may be used, the sides filled with moss; a half globe turned upside down is very pretty for this purpose; a moderate sized basket is best, the plants being small and dwarf.

The pretty little blue Scillas are very useful among forced bulbs, placed seven or eight bulbs in a four-inch pot. The best soil for potting bulbs is half loam and half rotten manure, with enough gritty sand to keep it open; a pinch of soot is good over the drainage, being a good stimulant and preventing worms from entering the pots. After potting place the plants in a cold frame or the moist part of a cellar, and cover with six inches of coal ashes; the pots will then get well filled with roots in a short time, and can be removed to the greenhouse a few at a time as required.

Lift and pot sufficient plants of Deutzia gracilis, Spirea Japonica, and a few plants of Spirea palmata, which have been recommended for forcing in the English gardening periodicals. These plants can be kept in a cold frame until required in the greenhouse, and although hardy, cannot be lifted from the open ground when frozen.

If any tuberoses which have not flowered remain in the ground, they must at once be taken up, dried and placed in a warm position for next year's flowering; any place which preserves Caladium bulbs well, is good for keeping tuberoses through the winter.

Caladiums should now be generally at rest; if any late plants are still growing, withhold water to induce them to die down as soon as possible; it is a mistake to allow these plants to continue growing late in the winter, the bulbs are subject to rot, and if not, they start weak the following year; the pots can be set away in a place where the temperature does not fall below sixty, but not to be

roasted in a perfect dry place or the bulbs sometimes decay with dry rot. Gloxineas and Achimenes will be generally at rest, and should be treated the same as Caladiums. Winter blooming Fuchsias should have a light, warm part of the house, and be occasionally watered with manure water.

Pelargoniums should be now growing freely, and will require more water with a light position and plenty of ventilation.

Callas will have pots well filled with roots and be growing freely, will require abundance of water; if green fly appears, either fumigate with tobacco or sponge them off with some weak tobacco water; a few of the most forward should be placed at the warmest part of the house for early flowering.

Poinsettias must have a good light place in the warmest part of the house, but well ventilated until the weather becomes cold. These plants will flower well in a temperature of 55 to 60, but if large bracts are desired, a temperature of 65 is required; the plants can be removed to a more moderate heat free from draughts when fully developed, they will then last in full beauty much longer; we obtain heads of bloom from twenty inches to two feet in diameter by this treatment. Euphorbia Jacquiniæflora requires the same treatment.

Aphelandra Roezli is a charming winter flowering plant, and can be flowered satisfactory in three-inch pots—its brilliant spikes of orange-scarlet flowers are very ornamental. We have not yet flowered niteæ, which is said to be the same color, but the beautiful dark varnished foliage is wonderfully fine, and quite different from anything we have before seen; this species is at present scarce and dear, but when better known will be very extensively grown.

Alocasiæ must be kept in the hottest part of the house. It must be recollected that these plants are evergreen, with the exception of Jenningsii and if allowed to lose the foliage like Caladiums, the plants will be much weakened and probably die. These plants are wonderful, telling at all times when well grown; the large metallic leaves in some, such as Metallica, Veitchii, Intermedia, Lowii and Sedenii; the last we consider the best; it is a vigorous grower an makes a specimen in a short time. The beautiful mottled leaf stalk of Zebrina, and the spotted and marble leaves of Macrorrhisa variegata is very beautiful, and usually attracts the attention of the most ignorant observer, for it seems so strange to see some leaves spotted with white, others half white and the other half green, and again, other leaves pure white. This plant is subject to red spider, and requires frequent sponging to keep it free.

Eucharis Amazonica must be kept in the warmest part of the house, and not allowed to suffer for want of water. It must be remembered that this plant is a native of the hot, moist valleys near the equator, where plants are in full growth all the year. We have no doubt that many people are under the impression that, because it is a bulb it is necessary to keep it dry and lose the foliage; this, and want of heat, is, no doubt, the reason so many people complain that it is difficult to flower. We have them in flower all the year round, from plants in three-inch pots up to large tubs.

Gesneriæ of the Zebrina class must be kept warm and be well supplied with water; the foliage of these plants is beautiful, independent of the flowers, which are various shades of orange and scarlet, and very showy.

Azaleas and Camellias should be placed in a cool part of the house, with the exception of young azaleas which are best in a temperature of 55 to 60 if convenient; they make much better plants in a shorter time then when placed in a cold house; watering must be carefully attended to, for although less is required at this season than when plants are in full growth, the plants require careful attention, or some will become dust dry and much injured if not killed.

Ferns and Lycopodiums when grown with other plants, will, at this season, when less shade is used, be liable to become dry quicker than in the summer, and must be frequently examined, more especially those

grown in baskets, for sudden checks from heat to cold and drying atmosphere, will often bring on a full crop of insects which will take much trouble to destroy.

It is not too late to propagate verbenas of any varieties which may be scarce, but plants rooted last month will be best, and furnish most cuttings in the spring. Keep these plants as cool as possible; a few degrees of frost will do less harm than a hot, dry house. It is well to give a fumigating with tobacco once a week, as a preventive of insects.

Heliotrope for cut flowers and early cuttings require a warmer place than verbenas, for if not kept rather dry, the plants are apt to die during winter.

Coleus, Alternantheras Collosiæ also require a temperature not below 50; if placed in a cold, damp house many will die, and the cuttings in the spring will be poor and scarce.

Tube Roses required to flower during the winter, must be kept in the hottest part of the house, and not allowed to become dry at the bottom, or the buds shrivel up without opening. We mention this because the plants are often placed over the pipes and will become very dry at the bottom where all the roots are, while the surface is quite wet.

Succulents, such as Echeverias and Sempervivums, if wintered in cold frames will not require water, and Aloes and Cactus but seldom, in a cool house at this season.

Begonia sanguinea is recommended by Robert Buist, as a very attractive window plant, and should be in every collection, large and small. The flowers are pure white, leaves blood colored.

The White Lilac is sold by the million in Paris, and is, next to the violet, the most popular flower. It is simply the common variety of lilac forced into bloom into the dark, and the blossoms are blanched perfectly pure white. Care is taken to avoid even ventilation, for one grower in Paris found when that was resorted to the flowers exhibited a tendency to assume their natural color. The houses are first quite cool, then the heat is gradually increased up to 80° and 100°. Abundance of moisture is supplied in the meantime, and not a gleam of light allowed to penetrate the glasses which are kept covered with straw mats.

Hydrangea acuminata.—A beautiful shrub with this name has just been introduced in Paris, and figured in a colored frontispiece of the *Revue Horticole.* It is a very hardy, vigorous growing and handsome species. The umbel bears on its outer margin, a single row of large sterile flowers, the petals of which are of a fine rose color, and are cut or scolloped on the anterior edge. The centre of the umbel contains a great number of very small fertile flowers, the color of which is of a much deeper rose. This species thrives well in the open sunshine.

An Immense Bouquet.—At a recent exhibition at Chiselhurst, Eng., an immense bouquet of violets was put on exhibition; it measured 3 feet in height, and 2½ yards in circumference at its broadest part. It was composed of dark and light colored violets, surrounded with leaves of the same flowers, and around the centre is a circle of flowering heather, emblematic of the Scottish descent of the late Empress.

Cytisus fragrans. — This is recommended by *The Garden* as one of the prettiest of all early spring blooming plants, and deserves to be more extensively grown than it is for this purpose. It bears an abundant supply of sweet-scented yellow flowers, and is easily grown in any ordinary apartment. All the attention it requires is to cut it down after flowering, and either to syringe or sprinkle the plant every day while making its young growth. It does well in any room window if protected from frost.

Andrew S. Fuller thinks the Herstine is likely to prove one of the best, if not the best of our native raspberries. It is early as any of the real varieties, fruit large, and with him in New Jersey, it is this year bearing abundantly.

Travels.

Gardening in Europe and Austria.

DR. J. A. Warder, of Ohio, was appointed to represent the United States Department of Agriculture at the Vienna Exhibition. In a recent address before the Ohio State Horticultural Society, he spoke of the condition of horticultural interests.

Vienna Exposition.—There was a quarter section of land appropriated, immediately in front of the Industrial Palace. You must understand that it had been a park, and had been held for that purpose for one hundred years, belonging to the crown, though the property of the people, and given entirely up to them for their use. The soil is what in this country is called bottom land, or the river valley land of the Danube.

The streets are sixty feet in width, and are lined with double rows of horse-chestnuts. Along these avenues are beer stands, and all the German people drink beer, but I never saw any of them intoxicated. This beautiful section was grandly presented by the architectural background.

I was pleased to see the introduction of so very many of our own trees, yet the beautiful tints that many of our trees take in autumn were not seen there. In the midst of all this is a beautiful lawn—and here we may take a lesson from the grass that was sown upon well-prepared ground—and the name of the person who prepared the mixture of seed that was sown was affixed upon the card. The ground was well prepared, but the thick sowing, and water plentifully applied, in a very short time made it green and beautiful; and while the soil was so loose that you might not walk upon it without sinking, the men went ahead with great shoes, like snow shoes, and cut the grass, and the women came after and gathered it up. The water was the great thing. Many beautiful fountains—very large—projected very high, and when a dash of wind came we frequently got a ducking. Another beautiful feature was their five-fingered creeper, creeping about in the same bright color that it has in this country, and reminded me of home.

The Doctor gave a full description of the appearance of the various forms of the gardening landscapes and of the variegated beds of flowers and plants in all forms and colors, so that the listener could have almost looked down into the fine garden. He said the leaves of many of the plants were yellow, still there seemed to be to him little beauty in these, as they appeared in decline, but to him was nothing so beautiful as green, though it were in any shade. He traveled elsewhere in Europe, and found that the people were great lovers of plants and flowers, and frequently you could see a man with a bushel of earth on his back, and filled with plants, going from door to door, selling them; and everywhere, in almost every house, you might see plants and flowers.

Forestry in Europe.—We sometimes have an idea that Europe is not well wooded, but on account of the small farms, there seems to be, when you look across the county, more wood than there is in fact. The trees are planted along the canal, and streets in Belgium, in straight lines, so that there is not the appearance of being so thickly wooded as are the British Isles. In Holland the tree most common is one almost exactly similar to the common cotton wood. In some of the more southerly countries the black locust tree is the most frequently seen, and everywhere the trees planted are arranged in straight rows. Along the Lower Rhine forest trees were principally confined to sides of the highways and to refuse land on the hills. Higher up the valley more trees on the hills were to be seen. He noticed the care that was taken when earth was taken from land bordering on the railroad to make "fills," how such furrowed out places were carefully scraped and leveled, and planted to trees. There seems to be a sleepless care that no land shall be permitted to lie waste—that all shall be utilized. The trees thus planted by the railroad authorities were the American black

locust, and are destined to furnish "sleepers" for the road as they are wanted. This admirable practice might be advantageously copied by railroads in this country. But not until you approach Bavaria do you seem to get into the great forests. These belong to the commons or cloister. Nearly every village has its common, where everybody has an equal right to cut wood or use other fuel that may be there. The trees are planted in rows four feet apart, in well prepared soil; but they do not try to cultivate rapidly; the people say that they will grow up in a hundred years, and they are satisfied with that. They do not allow any stock to injure the trees, and the young pines, especially, are allowed to grow very thickly. They make furrows, and the seeds float along from the parent tree and lodge in furrows; therefore, they come up in rows. They usually allow one or more trees to stand to cast the seed that will stock the ground anew, and also to protect the young trees coming on. I found but few kinds of trees in their forests. I found thirty-six kinds of American trees in their parks, but none of them in their forests. Where the Scotch pine is carefully started, it grows straight up, and is usually ready to cut in about fifty years. It is valuable for timber. The Austrian pine is used to obtain tar, and is scarified and drained about ten years before it is cut down for timber. The silver fir, of Bohemia, makes a magnificent tree, and some of you who are musicians may be curious to learn that your music boards are made from this silver fir tree, and are shipped to this and other countries. The Norway pine is more largely grown than any other tree. A small pine is found in large quantity in Italy, but is little used. The European larch, which though a conifer is not an evergreen, is a beautiful tree, and might well be used where durability is desired, though there seems to be a very popular prejudice against its use. These trees named are the only conifers found to any extent in Europe, though the beech, birch, iron wood, ash, oak and maple are found in moderate supply. But very few of our American white pine trees are to be found, but wherever they have been cultivated they grow very large, exceeding in size almost every other variety of timber. The beech grows on low lands, and is used usually for fuel. The felloes and spokes of wheels are made from this wood.

The ash tree of Europe is tall and beautiful. The birch is not confined to water banks, as here. It is a short-lived tree, and is usually removed within about sixty years. Many acres of waste land are being planted with Scotch pine. There are in Austria two kinds of forests, called the high forests and the low forests. The beech and oak are used to plant the low forests, and pine for the high forests.

There are for forest purposes but two kinds of maple; seldom saw any American maple. All stock is kept out of the forests, so that there is a very thick undergrowth; but in the pines the forest is so thick that the sun cannot peep in, and no undergrowth will appear, but the needles drop from the tree and form a nice carpet. One of the difficulties is wind storms. I saw a wood of 3,000 acres that had been broken down, and all the trees near the windfall are shaken, and insects take hold of them and destroy them, and therefore the forester comes and saws them down, for they do not chop down trees there with axes. A fine display at the exposition was Prince Albert's collection of the insects that destroy the forests, together with a full description of their habits and effects upon the various timbers.

General Reflections on what he saw. —Where oaks were grown expressly for timber, there was observed an admirable usage of planting beech trees among the oaks. The oaks were first planted out eight by twelve feet apart. In a few years thereafter, when the young oak trees had got well started, the intervening space was planted rather thickly with beech trees, whose rapid growth force the oak trees ever upward, and by the crowding process served to prune off all lateral limbs. He had observed that the oak forests of England, planted alone, required a great deal of pruning.

Forests in Europe belonged mostly to the governments. Some, however, belonged to the dukes, some to church institutions, and

some to the "burgs," or communities. But the State passes laws regulating forests, whether belonging to itself or others. For instance, when the trees are removed from any forest lands, the law is that the same ground shall be replanted to trees within five years. In reality, however, this replanting is usually done much sooner.

In the management of forests, two different practices in regard to cutting prevail. One is to remove all the growing trees, and to start fresh again. The other is to remove only such trees as have arrived up to their maximum value, thus cutting down some trees annually, and replanting the places made vacant by other trees.

Much has been said in this country of the importance of thorough cultivation of the soil preparatory to planting. But he found that the European plan did not embrace any such thorough cultivation. As much of the forests are on steep hills, when the timber is removed, the low stumps, thickly occupying the ground, prevent carrying out much systematic cultivation. And so far from thinking these stumps to be in the way, their presence is regarded as very important, as they prevent the washing away of the soil.

No one could look upon a well-managed planted forest without being struck with its great superiority over natural forests. We sometimes see the latter, and from noticing the quantity of fine timber trees, we think it is almost perfection itself. But when one has seen a cultivated European forest, and then comes back to look upon his perfect native forest, he is at once struck with the fewness of valuable trees in the latter, compared with what the ground is capable of growing. Where a planted oak forest shows fine timber trees, planted in rows, say eight by twelve feet apart, the great value of its trees over that of a natural forest impresses itself very forcibly upon the mind.

In European forest planting one thing was remarkable, viz., the small number of varieties growing. Of the large number of oaks, only four varieties were generally planted; six pines and three firs. Of the elms, ash, only one or two varieties each.

Of American trees, while they were numerous as curiosities in parks, private and public, they have not been planted to any great extent as forest trees for profit. Railroads have planted locusts to some extent, but managers of forests have a prejudice against it on account of the brittleness of its wood, rendering it liable to be injured by snows and winds. But probably the greatest obstacle consists in the obstinacy of the people holding on to things of the past, and disliking new things.

A Southern Vineyard.—The largest vineyard in the Southern States is near Fayetteville, N. C. The *Eagle* of that place, says that it contains 100 acres on which there are 7,000 vines. These vines are chiefly the scuppernong, but also include the flowers, catawba, and other varieties. It is supposed that the yield from these vines this year will be fully 40,000 gallons of wine.

At Nassau, Bahama Islands, an establishment for canning pineapples has been put into operation the present season, at a cost of $200,000. Six hundred hands are employed in preparing and packing the fruit. A million pineapples have been purchased this season, which were grown upon these islands, and were therefore procured in their greatest state of perfection, and over a million cans have been packed. The pineapples are purchased at from eighteen to forty cents a dozen, and the cans cost on importation hither $4.50 a dozen.

At a recent meeting of the Illinois Horticultural Society, Dr. Le Baron recommended a single line of tar on the ground, the chinch bug not crossing it; and Prof. Riley said that salt and lime are both good preventitives. He strongly recommended clean culture, and burning all rubbish in autumn, and said that most of the bugs would be found in the cornstalks.

Mrs. Marshall, of Dubuque, Iowa, has received $2,250 for 18,000 quarts of strawberries she raised, this season, from three and one-half acres of ground.

The Pleasure Ground.

Pruning Evergreens.

BY JOHN T. BLOIS.

I WILL suppose, for example, you have a dozen evergreens, two of a kind. Some you wish to grow in form of pinnacles and you select the Norway spruce, because it is a strong-growing variety, and let the leader run up as it chooses, only heading in the side limbs to thicken it up and do away with its shaggy appearance. If you wanted an oblate dwarf, say at a scale of six feet wide to twelve inches high in the center, you would take the weak-growing Balsam at a foot high, cut out its leader and, year after year, do likewise. Let it rise only about two inches in the year and not head in the side limbs, and you would have what you wished.

So, if you wanted an Arbor vitæ dwarfed, with round head at six feet high, or an Austrian, or other pine, hemispherical at eight feet, you would act accordingly by cutting out the top leader at the height you want, and the center leader to the side limbs, etc., according to judgment. There is a continued effort of the evergreens to make height and, if a top leader of a Balsam or Norway, for example is broken off this year, one of the side top limbs will rise up next year and take the lead. In short, whatever you fancy can be accomplished by taking the tree in early time; for, whenever you shorten a leader or side limb, the sap is immediately diverted into buds that grow and multiply limbs and foliage. You can make your tree a hemisphere, semi-ovoid, semi-oblate-spheroid, paraboloid, high or low cone, conoid, semi-oblate-conoid or a pinnacle.

The Balsam can be made a pinnacle, but the danger is that its lower limbs will thin out their foliage and die, and then the tree, as an ornament, is ended.

All ornamental pruning of an evergreen top is done by a judicious shortening in process, and should always, if possible, be done in early spring before the sap has started, but should not be commenced on an evergreen the year it is transplanted, nor until it is thoroughly established. In heading in a limb, always cut just above, say one-third of an inch above a bud, so that the bud may develop into a new limb (this rule does not apply to the pines however).

Another method to insure regularity:—Measure out from the bottom of the tree equal distances and drive a peg. Make a circle through the pegs—the tree as a center. From the pegs extend lines to the top of the tree and head in, in a circle, to these lines as a guide, either with the pruning shears or a long, sharp butcher's knife, with which you can cut off, by the eye, a limb at every stroke. The Arbor vitæ can have a rounded head, a paraboloid, and being furnished with numerous incipient buds will thicken up exceedingly by constant spring pruning. As I have remarked, early spring, before the sap flows, is the best time; and it is said to be fatal to a red cedar hedge to prune in midsummer.

The red cedar is capable of being made a very beautiful ornament. Being at an amateur neighbor's of mine several years ago, I observed a red cedar about four feet high, a straggling one-sided growth with three lobes of foliage two feet from the ground, with as large vacancies between—a very ungainly but thrifty looking tree. I remarked to my friend as we passed it, that that tree was capable of being made a beauty. "How so?" said he. "By heading in," said I. "How is that?" I told him to measure at the lowest limbs, an equal distance from the tree and around, and cut off all the leading limbs with his knife at that distance, and do the same all the way, tapering to the top, making the outlines of the tree cone-shaped, and keep doing so whenever he saw a limb shoot over the line. He offered me a knife and I showed him. He followed instructions whenever he passed the tree and saw a limb shooting out over the mark. In three years afterward, the tree had thickened up into a perfect cone. Even the open places had foliage, so close that a sparrow could not get

in its branches, and my friend was offered $100 for the tree if he would move it over to a neighbor's grounds.

The pines are more difficult to treat. I know a case, however, where a white pine was growing so fast as to require its removal or curtailment, where the owner cut off the leader, at nine feet from the ground where the tree was two and one-half inches in diameter, and each leading limb at the junction of its branches, leaving only the side branches of the limbs, and in one year afterward it was a comely looking tree, an ornament, but so contracted as to make no further trouble. I have no doubt that any of the other pines can be treated in like manner with success.

It is to be remarked that of all the distaff-headed growing evergreens, the pruning must be above the bud, for, if below, no shoot will start where there is no bud, as is the case in deciduous trees, but, wherever there is a bud, there will be a shoot, and the more the sap is checked by heading back other portions of the tree, the longer and stronger the shoot will grow.

By the term leader, I mean the main upright shoot, stem or body of a tree, not the side shoots or branches; and, when applied to the branch of a body or stem of a tree, the leading or main branch, not side shoots from a branch.

From what has been above written, I think it must appear patent that "cutting back" a main leader will cripple or dwarf a tap root, and strengthen the side roots, and "heading in" a branch leader will proportionately multiply and strengthen the side roots, so that the tree, whether fruit or ornamental, by this dwarfing process, becomes invigorated, and trees on the decline, by thorough and judicious "cutting back," may be forced by their tenacity of life to throw out new side roots and thus become healthy.

Dwarfing Evergreens.—To further illustrate the principle of dwarfing evergreens, I will refer to the notable evergreen garden of Warner Bundy, in Hillsdale county, Mich. This park is in front of his residence, facing the southwest, upon a street to which it descends at an angle of perhaps 20°, say five and a half rods long, and four and a half rods wide, exclusive of a walk on the west side flanked with various and rare ornamental shrubbery. It contains about fifty evergreens, including the Savin, Arbor vitæ, Austrian pine, White pine, Silver pine, Swedish juniper, Red cedar, Red spruce, Norway spruce, Balsam, Hemlock, White spruce, etc., fifteen or more of which have been wrought upon to produce various forms. Of these, ten are particularly dwarfed low, and consist in part of Norways and Balsams. Other varieties have been practiced upon, but I write more particularly of the two latter varieties.

The dwarf Balsams and Norways are about from one and a half to two feet high in the center, averaging six feet in diameter. Semi-oblate spheroids—very oblate and shaped much in the form of a dining plate, reversed side up, highest in the center, with gentle taper from the centre to circumference, set out nine to ten years ago, when about one foot high, with low furnished foliage and side limbs. This park consists of a great variety of forms. Some trees are erect, like the Silver pine, White pine, Austrian pine and Arbor vitæ, twelve inches in diameter respectively at the ground, set eleven years ago, and then of the same size as the dwarfs I am speaking of.

The method of dwarfing the evergreens was, in the first place, after the tree had become established, to cut back the top to the lower tier of limbs, then let grow, and the second year cut to the third tier of limbs, and so on from year to year, giving each year a new tier of limbs to grow out. The consequence was that there was a tremendously vigorous growth of the limbs left uncut, and every year's limbs falling on the tier next below, so that the whole tree was nearly flattened to the ground, and each tier of branches became imbricated on the tier below.

This park is not only a great curiosity and a credit to its maker and projector, but furnishes a study to any one who wishes to know what can be done in dwarfing evergreens from

top downward, and furnishes a rich, dark green, vigorous foliage.

There is a class of evergreens that, for many years, have grown to a height that was not "bargained for" when set out, and having been set too close together on the start, have grown into high pinnacles, and become so near to a nuisance that it is a question whether to cut them down or let them stand. The trouble is that they have been let grow to from twenty to thirty feet high, just as happened, without any attention whatever. The result is that the Balsam, Black spruce, and such slow growing kinds, are thinning out and denuding their under limbs, looking sickly, running up into spindles and losing their beauty.

The Norway spruce has a rank and shaggy growth, but has lost all its original comeliness from inattention. The question is, what shall be done with these neglected pinnacle trees? Early in the spring, before the sap begins to move, cut off the Norway spruce, say ten feet from the ground, if that is the height you want, two inches above a tier of limbs, and then head in the ends of the limbs, forming a taper from top to bottom, and practice likewise for three years, and you will have a comely tree. When you head in the side limbs and cut off the top, you will see a wonderful difference in the handsome growth of the tree. As to the Balsam and Black spruce, if the lower limbs have thinned out too much, the tree has "gone up," and no use of doing anything but cut down the tree. Sometimes, if not too far gone, the top may be cut off as before said, and the side shoots shortened in, the tree trimmed up three or four feet if the lower limbs are dying, and a fair, vigorous tree be secured if annually attended to afterward.

I think I have now said enough about the principles of treating evergreens, so that the inexperienced, using good judgment, can transplant and manage them as well as he can desire. I will now mention a few points about pruning deciduous trees.

Pruning.—It doesn't seem to be generally known, but nevertheless it is true, that the forest tree is capable of being made a thick, shady, vigorous tree on the same principles of shortening in that have already been laid down. The Sugar maple, Butternut, Black birch, and all sap-wasting trees should be shortened in before they shed their foliage in the fall, that the wood may dry and season over the amputated end to prevent a bleeding flow of sap. All other trees may be shortened in early in spring or late in autumn. Trees transplanted from the forest should have good roots—all broken or injured roots cut off from the under side with a sharp knife, and well set in late autumn or early spring, the top first cut off twelve or fourteen feet from the roots, with a single limb left on to attract up the sap; this should be cut off the next year, so that the tree may head out evenly. As the top begins to grow, all limbs growing faster than others, should be headed in to make a uniform head.

The principles referred to above in pruning the Red cedar may be applied in pruning a park of deciduous trees, giving each tree, however, its natural shape. The head of a tree once well shortened, it will continue to grow on evenly and handsomely in future, with a tight, thick, shady top. Whenever a limb is headed in, two, three or more shoots immediately put out near the excision, and the tree takes the habit of continually thickening up its head and enlarging its stem and limbs. The American larch or tamarack is said to become a weeping tree by heading in its top. When a tree has attained a considerable height, two men with a double ladder to be moved around the tree, are required, and the pruner should have a long, sharp, heavy knife, to sever the ends of the limbs.—*The Western Rural.*

Dwarf Flowering Almond. — The *Rural New Yorker* recommends the budding of this beautiful shrub on plum stocks, for giving a handsome form like miniature trees. A small head is first formed to the plum stock about three feet high, by cutting back at that point, giving three or four side shoots. These are budded in summer with the almond, and treated as other budded trees. It is recommended also to work the new and beautiful *Prunus trilobata* in the same way.

The Flower Garden.

Flower Garden for October.

TENDER plants which are required for stock, such as geraniums and scented verbenas, must be taken up and protected at once. It is useless saving old verbenas, petunias, and such plants, young ones doing much better; and the same may be said of geraniums, except for stock of any variety of which the stock is limited.

Arundo Donax variegata should be taken up and either laid into soil or boxes. These plants will winter well in a cellar, and generally in the open ground in many parts of the States. We should expect it hardy in all places south of New York; but it is well to have a good reserve stock, if only to vary the place of planting.

Cannas and Dahlias must be taken up as soon as the frost pinches the foliage. If left in the ground until the stems are killed, the roots frequently rot during the winter. These roots keep well, treated like potatoes, excepting a few varieties of cannas, which do not form much tuber. These require some of the shoots to remain on, and to be kept dry in a moderate dry place, free from frost.

Violets must be at once planted in cold frames, to be protected from severe frost. A few boxes or pots placed in the greenhouse are useful to gather flowers from in very cold and showery weather, when it is difficult to open frames. If home-grown lily of the valley is used for forcing, the roots should be taken up or protected before severe frost, or it will be impossible to dig them up when required; but German roots are so much better, it is hardly worth the trouble of forcing home-grown plants. If it is desirable to plant any of the beds or borders with spring bulbs, they should be planted at once, after digging and stirring in a portion of thoroughly decayed manure. It is a good plan to mulch the beds with salt hay or short straw, to prevent bulbs from being loosened by alternate freezing and thawing; it can be removed early, before the bulbs begin to grow. Some snowdrops planted in the turf, especially near shrub borders and under trees, are very pretty, coming in flower before the frost is well out of the ground, and the leaves will be mown off the first time grass is cut, without damage to the plants. Winter aconites and narcissus may be treated the same way, and will require no more attention after being planted.

Japan Lilies should be planted at once. They root all the winter, and do much better than when planted in the spring.

Roses.

BY C. H. MILLER.

[From an address before the Pennsylvania Fruit Growers' Society, Jan., 1874.]

THE hybrid perpetuals are general favorites, and deservedly so, for of all the hardy kinds they are the most desirable. They thrive under common treatment, and are generally suited for all soils and situations. For the embellishment of the flower garden and shrubbery they are indispensable, and can be relied on for all the various purposes to which roses are applied in garden and lawn decoration.

This division embraces classes of roses that differ widely in many respects. Some bloom but twice, others are almost constantly in flower till frost sets in. Some are quite hardy, others scarcely so, and require some little protection during very severe weather.

The China and tea-scented roses are the original perpetuals, and all others that are called hybrid perpetuals, have been created by hybridizing with one or other of the numerous species of summer roses, and breeding in and in with these crosses, to produce all the varieties now cultivated.

All are hybrid perpetuals but those which show strong resemblance to the species with which they are crossed. They are separated into classes by the principal rose growers, to conform to usage and for convenience of classification. Thus we have hybrid Chinas, hybrid Bourbons, hybrid mosses, and hybrid perpetuals or remontants.

Soil.—One of the conditions essential towards success in rose culture is the preparation of the soil. Good loamy soil requires

very little preparation beyond the usual trenching and manuring. It must be understood, however, that if the soil is wet, draining will be necessary, for it is useless and wasteful to put manure on wet soil. In all such cases, then, the first effort must be to drain the soil. Thorough draining airs the ground to whatever depth it drains off the water; therefore it is best to drain deep. Water occupies a large portion of the texture of what we call solid earth. When we draw the water from the soil by drains, the space thus occupied by the water in the earth is supplied by air. The air transmits heat and cold less rapidly than water. Deep drainage therefore tends to equalize the temperature of the soil, and to neutralize the effect of great and sudden changes in the temperature of the earth's surface. It is impossible to underdrain a wet subsoil too thoroughly, as the earth has the power to draw up from below all the moisture that is needed to sustain vegetable life; and in addition it also has the power to absorb a vast quantity of moisture from the air in its passage through the soil.

Next in importance to drainage, therefore, is *deep trenching*. It supplements drainage by often and repeated exposure of a certain depth of soil to the action of the sun and air, by which its oxygenation is carried on more rapidly than it otherwise would be when not so exposed.

The worst of all soils for roses are those of a light, dry, sandy or gravelly nature. In such soils roses often suffer from the dry weather in the hot summer months, and are liable to the attacks of the red spider, one of the worst enemies the rose has to contend against, and which is not easily kept under subjection in hot, dry seasons.

Poor soils of this kind or that of old worn-out gardens are sometimes beyond remedy. In such cases the best plan is to move the soil at once, and replace it with good turfy loam from an old pasture or corn-field. Soil that will grow good corn will grow good roses. If rather stiff the better. In fact strong loam and plenty of well-rotted manure, are really all that are necessary for the cultivation of roses.

The hardy kinds of roses are not so particular as regards locality, providing they have an open, airy situation, and far enough from trees of all descriptions that the roots of the latter cannot reach the soil of the rose beds, for it must be understood that roses want all the nourishment the soil can give them, and that they are not willing to share with others that which they require for their own sustenance.

Planting.—Under this head, I will take occasion to say, that the planting of roses as isolated specimens on a lawn, is in my opinion almost always a mistake, in fact an error in good taste. There are few, if any, that ever form under such treatment, an object sufficiently well foliaged to be pleasing, or even an object of interest when not in bloom.

In the suburbs of all our cities we see a certain number of gardens and lawns made hideous with starving rose bushes that have neither shape nor make at any time; that are leafless and scraggy half the year, and during the other half show a few unhealthy leaves, with an occasional flower that are scarcely equal in form and beauty to those imitation roses that are sometimes cut out of a turnip or red radish, and used for the adornment of the Christmas tree.

Then the first step towards securing a nice show of roses is to select the most sunny and airy spot the garden affords; and generally the most favorable spot is somewhere on the lawn. It should, however, be borne in mind that the location thus selected should not be the most conspicuous spot as seen from the principal windows of the dwelling, where their appearance in winter from their being leafless, and the necessary covering and protection, would be decidedly objectionable; but where in summer, when all is bright and lovely, a walk to the rose beds would afford a pleasant recreation before breakfast. And here let me say that, if you would see roses in all their freshness and beauty, you should see their half expanded buds with the glistening dew on their surface. A pleasure felt, but not easily described.

Arrangement of Beds.—The location

selected next in order is the form of the beds and their arrangement. Allusion has previously been made to the bad taste of planting roses singly on grass. A decidedly better and more proper way is to plant them snugly in beds, large or small, as suits the means and taste of the grower. For a small collection, one good size bed, circular in form, with the four sides scolloped towards the center, is the most convenient shape. By this arrangement the cultivator has all the plants within reach without having to step on the bed. The cultivator should also make himself acquainted with the different habits of the various varieties he intends planting. This can be learned by consulting the catalogues of the commercial growers. Those marked vigorous should be planted in the center, distributing the smaller sorts around the larger, thus forming a compact and regular outline, at once symmetrical and beautiful. For large collections a number of beds would be needed, and a variety of forms could be used. Each form should comprise a complete part of a general plan, each part being complete in itself, a perfect whole would be the result.

In garden decoration the climbing and pillar roses are very useful; neatly trained to posts for the center of the rose bed, and distributed throughout a well cultivated shrubbery they are very ornamental, and when blooming above and among the dark green foliage of well arranged masses of shrubs, they are seen to advantage.

Pruning.—The following few remarks under this title contains all that is necessary to be said on the subject. Long treatises have been written on it, describing in detail different modes applicable to different classes of roses, and confusing the rose grower by unnecessary and perplexing particulars.

One principle will cover most of the ground. Strong and robust growing kinds require little pruning. On the other hand, weakly growing roses should be pruned severely.

In shortening the shoots of the majority of hybrid perpetuals, four or five eyes should be left; but those of robust and luxuriant growth, such as Madame La Baronne de Rothschild and others of like nature, should be only shortened to about half their length. With the more vigorous summer-blooming varieties, cut off about one-third of their entire length only. Keep the center of the plant well thinned, and prune moderate, anything like short pruning with such subjects being productive of abundant rank wood and scanty blossom.

In the short growing hybrid perpetuals and bourbons, two or three eyes or buds are sufficient to be left. In the more tender tea-scented and chinas, all weak and useless should be removed; and the operation must be done with care. And as in many varieties the eyes or buds are far apart, the knife must be sparingly used, or failure may be the result. Much, however, depends on the object or the aim of the cultivator. If a profusion of bloom is required, or a constant supply of buds is necessary, without regard to the size or the perfection of the flowers, then very little pruning is required other than merely thinning out all weak and superfluous shoots, and shortening the ends of the main branches.

Climbing roses, such as Noisettes, Boursaults and the Prairies, and some of the vigorous summer roses, are the strongest growers, and require little pruning; first, because of their vigorous growth, and secondly, because profusion of bloom rather than quality is required. The old and dry wood should be wholly cut away leaving the strong and young shoots of one and two years growth to take its place, with no other pruning than the shortening of the ends of all side or lateral branches, and the thinning out of all useless shoots. In all cases it is the well ripened, plump looking wood that bears the best flowers. Old enfeebled and soft unripe wood should, in all cases, be removed.

Half pruning in the autumn is very important to lessen the weight that has to stand against the wind, and to prevent undue exhaustion from severe cold, dry weather. The final pruning may be done in March or the early part in April. The exact time depends very much on the season being late or early.

The object of pruning is threefold: first, to give the plant shape and proportion; secondly, to improve the size and beauty of the flowers; thirdly, to invigorate the plant. The first object is a very important one, as the future shape and health of the plant depend on the first training it receives. No two shoots should be allowed to crowd each other: a mass of thick foliage is both injurious and unsightly. Sun and air should have free access to every part of the plant.

Pruning in summer, when the plant is in active growth, has the contrary effect to that of pruning in winter, when the plant is in a dormant state, the process is weakening rather than invigorating. It deprives the plant of a portion of its leaves just at the time when they are most needed, and cannot in all cases be recommended. It is, however, often desirable, and frequently saves much trouble, and may be effected to a great extent by cutting the blossoms with long stems when wanted for decoration or otherwise, and by removing all decaying and faded flower-stalks. Many of the kinds by this treatment, and by reducing their main branches to one-half their length in June, are much more certain to give autumnal blossoms, besides the general appearance of the plants will be much improved.

To produce the best effect with roses, continous blooms should only be used; such as Hybrid perpetuals, Teas, Bourbons and Chinas. Summer roses that bloom once in a season and no more, are useless except for exhibition purposes. If you desire to have summer roses—and none and more beautiful when in bloom—let them have a place by themselves. Never let them mar the effect of the others, by planting among them sparse blooming kinds, when by a judicious selection of monthly blooms a complete succession can be had of beautiful buds and blossoms, and the rose garden kept in perpetual and ever increasing beauty.

Transplanting.—As roses flourish better for an occasional transplanting, and their bloom and foliage is always finer in cultivated than in grassy ground, a biennial lifting of the plant should form a part of their culture. The process will enable the cultivator to perform the operation of root pruning, often a very important matter with the strong growing kinds. And all who desire their roses to bloom satisfactorily in the autumn, should embrace the opportunity thus offered, to enrich the soil by deep trenching and by well-rotted manure.

Now the best time to transplant or lift and replant roses is when the roses are ready; and they are ready just before their leaves drop in the fall: say about the last week in October, or the early part of November. If proof of this is required, one has only to take up a few roses, two weeks after planting in November, when it will be at once seen that a large quantity of delicate white fibres present themselves. These roots are formed by bottom heat, or to put it in plain words, by what ground heat remains of the past hot summer weather, which is sufficient to establish the roots before winter sets in. From November the heat diminishes, and vegetation becomes less active. Therefore, it is easily seen that if the operation is deferred until late in November, the roots will remain stationary with every probability of their being injured by the winter, for it must be borne in mind that no amount of sun during the winter will have other than bad effect on roses planted after the time here specified. They may, and probably would survive the winter, and the buds start in spring; but as there will be a deficiency of fibrous roots, the plants will suffer accordingly. Therefore plant early in November, unless the plants have been grown in the greenhouse in pots all summer; in that case better defer the planting until spring. Plants grown in pots, although smaller, are generally more desirable than those grown and taken from the open ground.

Before leaving the subject, it will be desirable to point again to the fact, that to have roses in anything like perfection, they require liberal cultivation. They must have a compost of a substantial character; and in practice nothing has been found better than good, rich loam rather close in texture, and well-rotted barnyard manure.

Gardening.

Cannas.

BY JOHN QUILL.

WE doubt if any of the perennial bulbs bearing annual flowers and foliage, can rival the Canna in stately magnificence, grace, and sublimity. Adapting themselves as they do to almost any soil or situation either in city or country, they are foremost in contributing to the tropical appearances of the garden when planted in groups bordering on the shrubbery. Their continued luxuriance and beautiful sheen prompt us to always give them the most conspicuous place in the pleasure ground, and their utility for decorating the conservatory, window garden and drawroom is very well known. People think it difficult to preserve the bulbs of this plant over winter, yet the requirements for their preservation is very simple: first, see that the bulbs are perfectly dry before removing them to winter quarters; they will live in any dry place where the temperature will not fall below freezing, or pack under hay or straw in the stable or barn. Scientists will pronounce these bulbs unsafe unless packed in sand and sawdust. 'Tis not at all necessary; we found them to live under the same temperature and treatment that potatoes will. This plant will thrive satisfactorily in most kind of soils; still it, like other plants, has its favorite compost, namely, black, sandy loam with a mixture of fresh stable manure. Some of the older workers in the soil will feel a little chagrin at our prescribing fresh manure in this case—let such dispense with imported theories, and American horticulture will profit immensely. Bulbous-rooted flowers delight in striking their roots into a mixture of strong, fresh manure that has retained all the ammonia and other good substances so encouraging to plant growth and health. It may not be out of place to relate here a little incident that led us to the secret of forcing Canna into early bloom; it was accidentally this: An unruly cow broke loose from the pasture early one morning, and took a walk through the pleasure grounds, to enjoy in sweet solitude all the beauties that a well-kept landscape presents in the dewy mornings of June. She, however, did not confine herself to the mere admiration that circumstances offered, but indulged freely in satisfying her appetite on a large group of Cannas that occupied a central ornamental position.

The gardener did not curse much; he had often made new discoveries under a similar circumstance before, and was now anxious to know how the core of the stalk would develop itself, as he cut the bruised and broken shoots down within one foot of the ground. The growth of the leaves were checked by this operation, but the center remained active. Four days after a flower stalk of a very prepossessing character made its appearance above the cut, and in ten days more had attained the height of three feet and fully expanded blossoms. Meantime young shoots sprouted from the bulbs, and were making rapid progress towards repairing the injury done to the parent stalk. The shoots that remained unmolested in the group did not bloom until five weeks later than those that were bruised and cut down.

Canna Marechal Vaillant, a new species sent out during '73 and '74, deserves special notice on account of its superior quality for ornamental purposes. The great fault with the older species of this family, is the pendulous tendency of their leaves being swayed to and fro by the wind, and lastly broken by heavy rains. The leaves of *C. Marechal Vaillant* assume an upright attitude, once they develop and maintain this inclination throughout. In most cases two or three or more shoots start from each bulb, each attaining the height of 6 feet and covered from base to top with large, green, oblong leaves. Flower stalk smooth, erect and very substantial, dividing at the top into bud panicles. Corolla, creamy yellow, folding as the buds expand, and forming upright columns holding the petals composedly in their place. Petals large and conspicuous, orange color with pale crimson tints splashed delicately over the surface.

Speaking of Canna reminds us of a massive forest of bulbous-rooted flowers designed by the writer on the grounds of a grand institution in Cincinnati. A gas work was in continual operation in close proximity. Soot and smoke hovered above, all seemingly strictly neutral towards the vegetation that abounded plenteously on the beautiful grounds that surrounded the institution although located in the center of the city.

A tall growing species, *C. gigantea aurantica*, attaining a height of ten feet was chosen for the center of the grove, followed by the following named varieties, each sort completing a row in the large oval-shaped bed: *C. sanguinea chatei*, eight feet, flowers deep red, dark green foliage; *C. limbata*, seven feet, flowers scarlet, fine foliage; *C. Marechal Vaillant*, six feet, orange, beautiful upright green foliage; *C. zebrina*, five feet, scarlet, striped foliage. Other bulbous-roots were planted alternately, thus after Zebrina, a row of Tritoma uvaria; *C. aurea vittata*, four feet, very ornamental, followed by a row of Liliums auratum and lancifolium; *C. warscewiczii*, three feet, flowers brilliant red, variegated foliage, followed by a row of Pompon Dahlias; *C. museafolia hybrida*, two feet, red foliage, followed by Gladiolus, Tuberose and Tigridia, one row of each kind; *C. angustifolia nana pallida*, one foot and a half, followed by the smaller sorts of variegated Caladiums, making an ornamental edge for the forest of foliage and blossoms. The gay buds and large expanded petals of the Gladiola, Tigridia, Auratum, etc., contrasted finely in sublime harmony with the beautiful leaves of the dwarfer Canna, giving the scene a feature that baffled description.

Gentlemen visitors from Philadelphia, New York and Boston, pronounced this tropical arrangement superior to anything they had ever seen in the floral line. And we add as an encouragement to young America, that the designer had never seen those much boasted of foreign gardens, nay, nor never received instructions from any one who graduated in said gardens.

Cincinnati, Ohio.

Shade Trees.

BY JOHN QUILL.

THE *Gardener's Monthly*, for May, tries to enlighten its readers on the most successful modes of planting shade trees in the city. It cautions us not to provide trees for our sidewalks except those that are easily moved, of a strong and vigorous growth, and proof against gas and worms. Trees possessing these confined qualities are indeed suitable for sidewalk planting, but *The Gardener's Monthly* fails to satisfy us in the trees thus qualified to grow rapid and strong, and resist the effects of gas and the action of worms. Gas, according to the theory of *The Gardener's Monthly*, kills thousands of street trees annually. Gas, we will agree, is destructive to vegetable life, if so confined as to be directly under the influence of gas. It is now a general belief among the more rational scientific men, that gas, once it leaves its confinement, makes its way swiftly, much rapider than smoke to the upper regions; that the continual emanation of gas from the various apparatuses mixes with the atmosphere while moving in swift currents upward, it is true.

Gas, as every school boy knows, is composed of aeriform fluid, with an impatient tendency to move upward, whether in a body combined or disseminated. Advocates of city trees would have us believe that gas in place of rising to a lofty destination, hovers close to the surface in a dewy vapor to be absorbed by everything vegetable that has pores to breathe.

If critical Tom would honor Cincinnati with his presence for a day or two, we would convince him double quick that gas should not be entirely blamed for the sickly appearances of shade trees on city sidewalks. We would show him to the gas works of a large institution in the center of this city, where a grove of various kinds of trees—trees that a sidewalk forester would deem unsuitable for the city, are growing and flourishing finely around the tanks, meters, retorts and purifiers of this gas structure.

Here, then, is a living monument for the man of science to study; absurd as it may seem, there are hundreds who will unhesitatingly vouch for the truth of this statement. Volumes of gas and smoke escape at the drawing and recharging of the retorts, a large portion of which passes between the leaves and branches without molesting them the least.

Flowers and shrubs thrive in the vicinity of the gas work, and we have seen a large group of the finer species of bedding plants perfecting their foliage and blossoms with health and vigor in the distance of sixteen feet from the gas purifier.

In the suburbs of this city a gas apparatus is surrounded by cherry trees; escaping gas and smoke pass between the branches and leaves continually, yet these trees bear a heavy crop of fruit annually. The writer has time and again stood on the roof of this gas house and picked baskets full of rich and juicy cherries from the surrounding branches.

What is it then that we are to attribute that sickly, shriveled condition of trees in this city to? The pretending scientist will answer gas, while the more rational practicer will answer dirt, soot and dust, washed by drizzling rains into the interstices of the bark, stifling the pores and thereby depriving the trees of their breathing facilities. Why not economize a portion of the water so lavishly wasted in cleansing the pavement under those dirty trees? Why not direct the nozzle of the hose towards them? they are stifled and gasping for breath—let the water play with force against the bark, leaves and branches. This will animate new life, encourage growth, health and vigor, and help to dislodge any pests that are inclined to feed on the foliage.

The Gardener's Monthly enlightens us in following mode: Trees die for want of nourishment, being planted on sidewalks that have been graded up with coal ashes and other refuse, without sufficient soil being put to support them—they grow a little at first, and then gradually dwindle away.

We have seen trees grow luxuriantly in coal yards, where cart loads of coal dust could be shoveled off their roots. We can also affirm from practical experiences, that refuses of lime, mortar, saw dust, wood chips, shavings, etc., mixed in the grade with sand, ashes, muck, clay, street sweepings and other rubbishes when packed together under the pavement for a few years will rival the loam of the forest in maintaining the life and vitality of trees. Speaking from a practical standpoint, we can also confidently assert, that trees once taken root in these accumulated ingredients will dwindle away only when stricken with disease from dirt, dust and soot.

The Gardener's Monthly is inclined to condemn the Tulip poplar and Magnolia acuminata on account of their obstinacy to bear a successful transplanting. Quite obstinate, we will agree, moreover, if laid on the sidewalk for half a day to bleach and then stuck in the ground close to the curb stone like lamps or hitching posts by some quack forester. *The Gardener's Monthly* further assures us that Lindens, Maples and Chestnuts are sure victims to insects, worms, etc., and again adds, that Paper mulberry and Silver poplars should be discarded in consequence of their tendency to lean over and heave pavements.

Worms like to dwell among dirty things, you know. Use the hose; a strong stream of water will exterminate both pests and dirt, and float them safely into the sewer. The irregular tendency of the P. mulberry and S. poplar may be attributed to injudicious planting; as the trees grow old their roots cram the space between the curb stone and basement wall of the buildings. Street tree planters should learn how to sink the roots of trees below the lower edge of the curbstone, thus inducing the trees to extend their roots under the whole street.

'Tis now prudent for us to pause with a view to economize space, hoping THE HORTICULTURIST, as well as thousands of its readers, will agree that the first thing to be considered in this much agitated city tree question, is the cleansing of the trees.

Cincinnati, Ohio.

Fruit Culture.

Neglected Fruits.

BY J. S. PARKER, M.D.

BY these, we do not mean that they are unknown, but undervalued. We, Americans, have a "King-worship" or a "man-homage" spirit. We have but two or three lawyers, which we applaud, and these we all praise. We have two or three great merchants, if we neglect others. We popularize a few physicians and ignore other good or better men. We idolize a Bartlett pear, and have but three or four popular pears. All this is an error. No man is perfect. nor any fruit. As one of these undervalued fruits let me name the *Bloodgood Pear*. Downing, in the first edition of his book on Fruits says, "this is the highest flavored of all early (or summer) pears, and deserves a place even in the smallest garden." It originated near New York city, or was brought there by some one, and was introduced to the public about the year 1835, by James Bloodgood, then a nurseryman at Flushing, Long Island. Downing says nothing in its dispraise. Thomas says it is liable to decay at the core, and insipidity on certain soils. To this we reply, so are many valuable pears, especially summer pears. My own opinion is, that it should not be set out on clay, or on damp, mucky soil. That on light, loamy or gravelly loose soil, even if a little clayish, in dry, airy situations, it is fully equal to the praise of the elder Downing. It is as large or larger than the Seckel, bright yellow with irregular russet fine dottings, which often give it a beautiful appearance. Ripens August 10th to 25th in Central New York, and is not, perhaps, the highest flavored of all pears, but one of the most delicious of summer pears.

Plymouth Colony Apple.—This is generally known as "Golden Sweeting" in Central New York. It is more of a greenish yellow than golden yellow. It is so old that it is attributed to the old Plymouth Colony, Massachusetts. Its exact history I have never learned. It is also called "Summer Sweet" and other names. It is a roundish apple, a little shorter from stem to calyx than in horizontal diameter. Slender, longish stem, has sparsely scattered white specks, and often a few minute black specks on its sides. It is very sweet, tender, and a constant bearer; tastes better than the Sweet Bough and cooks better. It is popular where known, but I have never seen it largely for sale in city and other markets, and it is unknown to many people.

Rostiezer Pear.—In shape it resembles the Summer Bell, a pear which sells well in city markets, because so prolific and so cheap, yet the Rostiezer is in every way a better pear. It is an early autumn pear in the northern states, with long stem and a dark greenish, yellow color, except when reddened on their cheeks by the sun; said to have been originated on the river Rhine, in Germany. It is easily known, as it is so near pear-shaped as the common Bell Pear, and ripens but a few days after that pear.

Summer St. Germain.—This is another delicious summer pear when grown on dry, loose soil. On hard clay and in damp situations it is apt to be too juicy and second rate in flavor. Summer pears need clean, moderately rich soil, annually manured at the roots of the trees; a quick airy soil with warm exposure. Thus cultivated, no summer pear can please us much beyond the St. Germain. Like the Bloodgood and Rostiezer, it is medium in size, as are most summer pears; it is juicy, tender and with just flavor enough to suit every one when well ripened. It is obovate, or like Sheldon in shape; light green, stem an inch or a little over long.

There are a few fruits that have pleased me this season so far. As to apples, the Early Strawberry and the Red Astrican are becoming our early market apples, to the exclusion of the Yellow June-eating or Golden Tart Harvest, and the Sweet Bough. Why a yellow apple was the favorite a few years ago, and the red is now in preference, is not so easily explained. Yet for health in its

eating and pleasure as a baked apple, I know no apple so good as the Golden Summer Sweet I have just spoken of. Let us at least be wise enough to know that there are other good pears besides the popular rage for Bartletts and Seckles. Said an extensive dealer to me the other day, "I sell ten to one of these two, Bartletts and Seckles." You must educate especially young married housekeepers to the value of other kinds. So I have said a word to the wise.

Dwarf Pear Trees.

IN a discussion on this subject by the Massachusetts Horticultural Society at an early meeting of this year, Mr. Charles M. Hovey excepted to the rooting of dwarfs from the pear, believing it would be better to let them run out their natural lives and then take them up. He thought they would not make as good standards as those originally grafted on pear stocks, on account of their tendency to send out one or two strong roots on one side of the tree, instead of rooting regularly all around the tree. If allowed to root from the pear, they must either be planted at the proper distance for standards at first, or thinned out to such a distance.

Mr. Wood admitted the tendency to which Mr. Hovey objected, but said that it could easily be obviated by the operation of "lipping;" that is, removing the earth and cutting several tongues at intervals around the tree by an upward cut with a gouge or knife, beginning to cut at the bottom of the swelling of the pear where it joins the quince. These cuts should be from an inch to an inch and a half long and a quarter of an inch wide, and kept open by pressing a little earth under the tongue. The earth should be replaced over them, when they will soon send out roots freely all around the tree. The best time to perform the operation is after the middle of June, when the tree is growing rapidly and the ground is warm, so as to excite the production of roots. The soil should be kept moist by mulching or otherwise; in fact, the conditions of success are precisely the same as those required for striking cuttings. Standards made in this way have the advantage over those grafted on seedling pear stocks that they do not send down long tap roots into cold, ungenial soils, to the injury of the tree and fruit.

Marshall P. Wilder had had a great deal of experience with dwarf pear trees during the last forty years, and was strongly in favor of them on account of their early bearing. Two-thirds of his collection were originally on quince roots, and by using this stock he was not only able to test many new varieties in much less time than would have been required with standards, but to furnish himself with fruit in a very few years. Viewed in this light dwarfs were not only exceedingly useful to the amateur and experimenter with new fruits, but a great blessing to the family. He did not concur with Mr. Hovey's view that the dwarf, when rooting from the pear, sends out one-sided roots. Some varieties, such as the Vicar, send out roots freely all round, without the trouble of lipping, and, the quince dying out, they made the very best standards he had got. His system was to plant standards sixteen feet apart, with dwarfs between, and when the standards grew so large as to require all the room, the dwarfs which had rooted from the pear were transplanted to other situations, and were found to be amply supplied with fibrous roots, without any tap root whatever. In this way a large proportion of his trees were made. Where varieties like the Bartlett, Doyenne Boussock, and Belle Lucrative send out roots from one side only, they still make fine standards when they get well established. In regard to the durability of trees on quince roots, Mr. Wilder said that he had some which, though not rooted from the pear, were more than thirty years old, among which were Urbanistes, that each bore regularly more than a barrel a year.

Canning Strawberries.

STRAWBERRIES are found by some difficult to can, but we have found it otherwise. Our wife has practiced canning this excellent fruit for, at least, fifteen years, and has met with no more failures in this

than in other kinds. Her usual way is, to put the fruit in a porcelain kettle, with enough sugar to sweeten it to the tastes of the family —from one-fourth to one-third of a pound of sugar to a pound of fruit, depending upon the acidity of the fruit—and cook it sufficiently to thoroughly expel the air. Having the *glass* cans tempered by standing in hot water, she dips the boiling fruit into them, and immediately fastens on the covers. After the cans have cooled, she goes over them and tightens any covers that may be a little loose. Her loss probably does not exceed five per cent. of the whole, and is no greater with strawberries than with other species of fruit.

Until quite recently we had always practiced canning the Wilson's Albany, exclusively. So much sugar is required to render this very sour variety palatable when cooked, that it is too rich or strong to be really first rate. Two years since, our bed of Wilsons having failed we were obliged to can such varieties as we had, mainly Green Prolifics, and Jucundas, less acid berries. When we came to use them, we were much surprised to find them far more delicious than the Wilson. Hereafter if we can the Wilson at all, it will be intermixed with Triomphe, Jucundas, or some other varieties, sweeter than Wilson.

One word in regard to sweetening fruit before canning it. This is done not with a view to its keeping better—for the keeping depends upon the exclusion of the air or oxygen, the acidifying agent, not upon the preservative virtue of the sugar, but because it is better to have the sugar cooked into the fruit, and it would be quite inconvenient to heat up the fruit again, after taking it from the can to cook in the sugar.—*Am. Rural Home.*

Best Varieties of Cherries.

FOR market, it is very important that the fruit be large, handsome, firm, with a tough skin. Some of our most delicious cherries, such as Yellow Spanish and Coe's Transparent, are so tender in skin or flesh as to be almost worthless for shipping.

Black Tartarian stands decidedly at the head of the list for profit. It meets with the most ready sale of all varieties. It is uniformly productive, very large, heart shape, purplish black, firm, juicy, sweet. We would advise any one in this vicinity setting out for market a cherry orchard, to plant three-fourths of them Black Tartarian.

Among other kinds of black or purple cherries sold quite largely in Rochester markets are, Black Eagle, Knight's Early Black, and Black Russian—the latter a late, firm, rather bitter, second or third rate cherry, which sometimes sells well on account of its lateness.

Napoleon Bigarreau—probably the most profitable yellow cherry for market. Very large, heart-shape, pale yellow, with red cheek, flesh firm, juicy, good. Tree vigorous and productive. This variety is in demand for canning—the yellow being preferred to the red for that purpose—and probably ranks next to the Black Tartarian for profit.

We select the above kinds most extensively grown for market here. We have little doubt that those who should confine themselves to Black Tartarian and Napoleon Bigarreau would come out with the most money. For family use, we would plant one tree each of Yellow Spanish, Coe's Transparent, Rockport, May-Duke, and Reine Hortense. — *Rural Home.*

The Charles Downing Strawberry.—J. L. Budd, Shellsburg, Iowa, says: "We surely need a strawberry for home use with less acid in it than the Wilson, at the same time retaining, as far as possible, the hardy habit and productiveness of the latter. So far as my experience and observation go, the Charles Downing is just about the berry we have been looking for. It is of large size, moderately firm, of most excellent flavor, plants vigorous and hardy, about as productive as the Wilson, and the strength of the plant is such that the berries are held up from the dirt much better than with the Wilson."

Window Gardening.

Window Garden Notes.

BY HORTICOLA.

Callas.—One of my lady correspondents complain very much of her Calla Lily which "grows vigorously but produces no flowers, and has not had any for two years." Without asking any questions, I venture the assertion that the trouble is not in the bulb as she supposes, but is in her mode of caring for the plant. She probably waters it regularly the whole year, and thus keeps up a constant growth which effectually prevents bloom. All bulbs must have a season of rest in order to produce fine bloom, but her lily gets none. It is too late to remedy the trouble so as to obtain the winter or spring which she desires, but we would suggest the following treatment for next season. About the last of May or early in June turn the pot *on its side* under a tree, and, if possible, forget it entirely, until the last of August or first of September, when she may place it on her shelf and supply water gradually at first, and as the leaves increase, more liberally; if summer bloom is wanted, let the rest be in the winter.

Hanging Baskets.—Many readers are, no doubt, in a state of doubt as to what plants to select for their winter hanging baskets and vases. For this purpose we would strongly recommend the finer Tropæolums. None are much better than the *T. Lobbianum* and *T. Schulzii*, though I have had good success with *T. peregrinum*. One trouble with these plants is, that with many they lose all their beauty when their owners find they are nothing but Nasturtions. These plants need a free supply of water, and do best in large baskets where the roots have room. A large basket or vase may be well filled by a plant, each of Thunbergia Aurantiaca, Tropæolum Lobbianum, Convolvulus Mauritanicus and Scypanthus Elegans. Some would like to add a Barclayana, but we find it too delicate to struggle with those which we have named.

Pot Flowers.—Many of those who attempt the raising of flowers in pots, make a fatal mistake at the very foundation, in the selecting of the soil. Many use a soil which is too compact to allow water to pass freely through it, and the plants soon become "water logged." The soil should be porous enough to admit of the free passage of water, and yet not so open as to dry up. A pile composed of equal parts of partially decayed sods, manure and wood loam, will, when thoroughly decayed, make the best possible soil for pots. If sods and manure are used, garden soil may do, but most of it contains most too much clay; this may be counteracted by using sand. The soil must allow the water to pass freely through it, and too much should not be applied at one time; little and often is the safest rule.

After another season's trial, I can strongly endorse the use of a single plant of Passiflora in a large vase or pot, the vine to be allowed to run over a window, but not in contact with it. The new variety *P. trifasciata* is the finest, as its tri-colored leaves are a great addition to the beauty of its flowers, which of themselves are the most beautiful of the Passifloras, though much of their beauty depends on proper care and treatment.

Plants in Rooms.

How to Plant; When to Transplant.

MR. Robinson's new horticultural journal, *The Garden*, in discussing lately the best season for transplanting house plants, says, it is when the plants are about to pass from a state of rest into a condition of fresh growth, that is, early in spring. Another favorable time is at the end of the first growth in spring, and before the plants (as is the case with many evergreens, such as Camellias, Azaleas, etc.) commence to form the buds for the following year. Transplanting at the time when the plant is in full growth should be avoided, as it disturbs the growth of the plant, and the young shoots are frequently injured, and sometimes quite destroyed. It is only to be recommended when individual

specimens of speedy growth are grown for exhibition, and for this purpose are transplanted several times in the course of the summer. Transplanting in autumn is especially to be avoided in the case of room plants, as the new soil does not become filled with roots during the winter, and consequently, becomes sour and spoiled; and, if not watered with great care the plants will become sickly, or perish completely. There are a few exceptions to this; as, for instance, bulbous plants, which are kept dry late in summer, and are intended for winter blooming, and some other plants which are to be forced in winter. We would especially remark that the result of forcing will be so much the more certain, the earlier this transplanting takes place, in autumn or late summer.

In the common practice of a transplanting, fine, healthy specimes are sought to be raised in pots which are proportionately not too large. Plants which have their ball only so far filled with roots that a few small ones reach the side of the pot, should not be transplanted so long as these roots are healthy, and the soil of the ball is fresh and does not give out a sour smell; which, as we have seen before, is the result of an unhealthy and injurious condition.

Where the soil is spoiled, or the young roots are unhealthy, or, as is frequently the case in good culture, the entire ball becomes so full of roots that it seems to be thickly covered with threads, the plants should be transplanted. Therefore, before proceeding to transplant, the condition of the ball should be examined. This should be done very carefully, so that in case no change is necessary, the ball may be replaced in the pot without injury. With small plants this examination is best effected in the following manner: The left hand is spread over the top of the pot, allowing the stem of the plant to come between the fingers. The pot is then taken in the right hand and reversed. The edge is then carefully struck against the corner of a table or board, so as to loosen the pot from the ball; the pot is then lifted off and the ball examined. In the case of larger plants, the soil is first of all allowed to become somewhat dry, then the plant is seized by the lower part of the stem and lifted along with the pot. The pot is gently struck on the rim with the hand or a piece of wood, and so carefully separated from plant. When a ball filled with roots will not readily separate from the pot, a knife should be passed round the edge as deep as it will go; this will greatly facilitate the operation.

Lastly, plants in large wooden tubs or boxes should only be transplanted when an examination of the ball from above shows that transplanting is absolutely necessary. The vessels are removed either by taking off the hoops of the tubs, or by taking the boxes to pieces, or else by first passing a long knife round the ball to loosen it, and then turning the vessel on its side and carefully drawing out the plant. After the ball has been carefully removed it should be reduced in size, by removing the spoiled and exhausted soil, in order to give the plant as much fresh, good soil as possible, without having to place it in too large a pot or other vessel, which, especially in room-culture, would be very inconvenient. For this purpose the earth round the ball is loosened by means of a sharp-pointed stick, and is shaken out from the roots, so that the ball may be rounded above and below, and its diameter reduced to three-fourths or two-thirds of its former size. If there is an underlayer of potsherds, etc., it must be entirely removed. The boards should then be trimmed round with a sharp knife. In sickly plants the roots will be more or less decayed in parts. These parts must be cut back until sound wood is reached. The roots of healthy plants should not be cut when the plant is in a state of active growth; in which condition, or when it is known that the plant will be injured by a severe root-pruning, it will be sufficient to take away some of the upper soil to remove the layer potsherds, to loosen the surface of the ball, and to trim a few of the longest roots a little.

In planting, a pot should be selected so large that, according to the strong or feeble root-forming powers of the plant, there may be round the ball a layer of fresh earth from

one-third of an inch to one inch thick. A piece of potsherd, arched in shape, should then be placed over the drainage-hole, so as to cover it well above, but leaving space at the sides for the flow of water. Then should follow a layer of broken potsherds from half an inch to one inch thick, and over this a thin layer of moss to prevent the soil being carried among the sherds. Instead of the layer of potsherds, a layer of moss or of coarse sand may be used, or some of the coarse fibrous tufts which remain in the sieve when soil is sifted. Attention in providing good drainage will be always repaid by the healthy condition of the plants which it secures, especially if they are sometimes carelessly and immoderately watered. After the drainage layer has been put in, just so much soil should be placed upon it that when the ball is laid in, the uppermost roots will be from about one-third of an inch to an inch below the top of the rim of the pot, so that when the soil is filled in, there may be sufficient space left to retain the water in watering. The ball being so placed that the plant may stand exactly in the center of the pot, the soil should then be filled in. This should be dry, so that when closely pressed it will not become cloddy. During the gradual filling in of the soil, the pot should be repeatedly shaken, so that the soil may be evenly settled all round. In small pots it will be sufficient after the soil is filled in to press it down close with the thumb. In pots more than five inches high, especially when the space between the pot and the ball is only limited, the soil should be pressed in during the process of filling in, with a flat, blunt piece of wood, so that it lies evenly in all parts. When the soil is moist and stiff it should not be pressed so closely. The common rule is that a well-potted plant, if the pot is not disproportionately large, may be lifted up by the stem along with the pot without the pot falling off. This experiment should not be tried with weak plants, as they could not sustain the weight of the pot and would break off, especially if the soil was stiff and moist and the pot rather heavy.

After filling it with just so much soil that the upper roots will be covered, it is to be pressed round the rim of the pot, so that the flow of the water may be directed towards the ball, and not pass through without wetting it thoroughly. When it is desired to raise strong specimens quickly, the roots of the plants should not be trimmed more in transplanting than will allow them to draw sufficient nutriment from the soil in the pot for a strong growth. Two modes of treatment are in use, viz.: a single transplanting, and transplanting several times. Single transplanting in pot culture is similar to that practiced in open air culture. It is generally employed in the case of young healthy plants of quick growth, which have not been long raised from seeds or cuttings. When they are transplanted in spring, they are put into pots from twice to four times the diameter of those in which they have previously grown. The old ball is not disturbed, only the roots which come through it are loosened and spread out in the fresh soil, which should not be pressed down so closely as in ordinary transplanting, as it will be quite sufficient to shake the pot frequently and then press the soil down gently with the thumb. A deep layer of potsherds and moss for drainage, is, in this case (where at the same time a great deal of nutriment is given, and the soil changed only once in the year), very conductive to successful results.

Ammonia for Verbenas.—Sulphate of ammonia is an excellent manurial liquid to apply to verbenas and other flowers, giving to the foliage a dark green, luxuriant and healthy appearance. It is economical, clean and easily applied. Prepare it in the evening before using, by dissolving one ounce of ammonia in two gallons of water. It may be applied with safety about once a week.

New Tea Rose.—It is stated that a new Tea Rose, called *Perle de Lyon*, has been raised in France. This novelty is said to resemble Marshal Neil, but being only more beautiful.

New and Rare Plants.

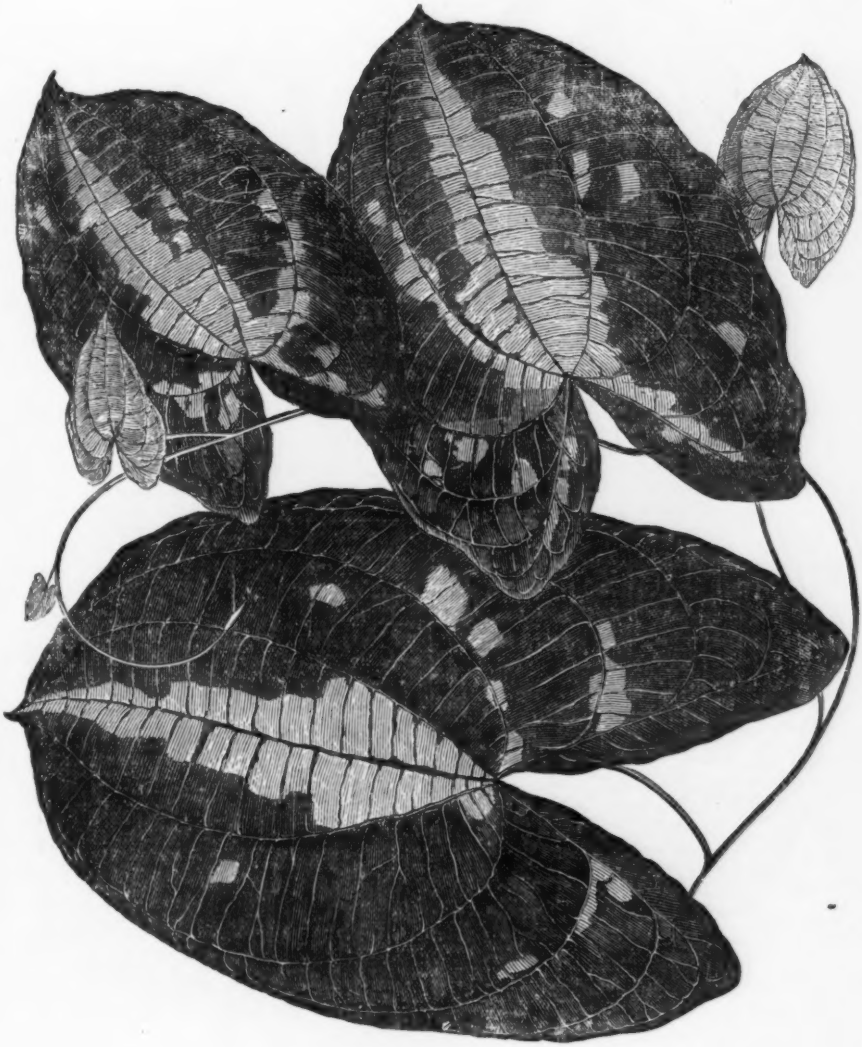
Dioscorea Illustrata.—A handsome-foliage stove climber, imported from Rio Grande do Sul. The stems are wiry; the leaf-stalks angular. The leaves are cordate sagittate, about six inches across, abruptly apiculate, and produced at the base into two bluntish lobes, which are three inches across; the blade from the petiole to the tip measuring about five inches. The size and marking of the leaf are the peculiar features of the plant. There is an irregular central band of silvery gray, and a few angular patches of the same color generally placed in juxtaposition with the ribs, of which there are four on each side the costa. The surface is a satiny green, shaded with olive green, and marked by fine, transverse, whitish, parallel lines between the nerves, a third series of irregular virulets crossing between the latter. The under surface is purple.—*William Bull.*

Lilium Tigrinum Flore Pleno.—This is one of the most remarkable varieties yet produced of the Tiger Lily class. Its flowers are very large, double, and of a bright orange color; the segments are thickly studded with dark brown spots, except at the tips, which are recurved—introduced from Japan only within a few years, and hitherto has been quite rare and high priced. Considered by florists very novel and extremely handsome. Most American florists now have it.

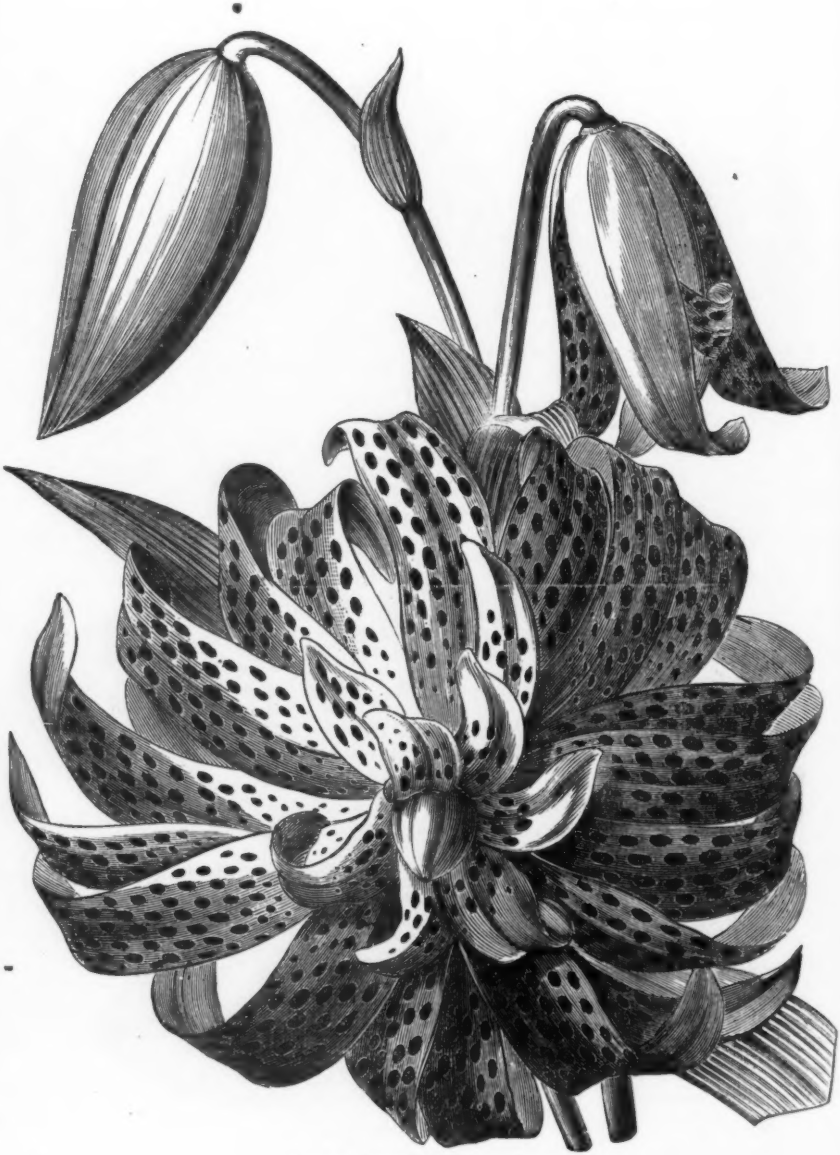
New Ferns.—Ferns have yielded little of importance during the past year, if we except the interminable and hard-named varieties of British species, which we owe to the enthusiasm of cultivators. The Dicksonia Sellowiana, however, a tree fern of Brazil, which has found its way to the Belgian gardens, will be a nice addition to our collections; Davillia (or Humata) Tyermanii is a charming basket fern from West tropical Africa, its small deltoid tripinnate fronds and silvery-scaled rhizomes being singularly ornamental. Elaphoglossum Herminieri, christened the Eel Fern by Dr. Seeman, from the resemblance of its clustered glossy iridescent sterile fronds to clusters of silvery eels, is a good stove basket fern; and Trichomanes auriculatum is a lovely creeping stemned, hothouse film fern, with transparent green, narrow, bipinnatifid fronds. Asplenium marinum Thompsoniæ and Polypodium vulgare cornubiense (or Whytei, as it is sometimes called) may be mentioned as most distinct looking bipinnatifid varieties of the Sea Spleenwort and common Polybody respectively, which, as is well known, are normally pinnatifid only.—*Gardener's Chronicle.*

Gordon's Dwarf Fir (*Abies Gordoni pumila*).—This is a new variety raised by M. Molet, nurseryman, of Plessis-Piquel, France, and forms a dwarf pyramidal shrub with numerous erect branches, covered with a smooth bark of a light green or slightly yellow color. The leaves are of a deep green on the upper surface, and are marked underneath with two glaucous bands. It forms a very handsome miniature shrub, well suited for small lawns or gardens, while the leaves never turn brown under the sun, as those of the parent plant are liable to do. Another advantage which it possesses over the latter is, that cutting from all the branches form vertical leading shoots, as readily as if they were seedling, a property which belongs to hardly any other species or variety of Abies.—*The Garden.*

A New Canada Apple.—A new apple, originated in Canada, by Mr. Charles Arnold, from a cross fertilization of the Wagener, Northern Spy and Spitzenburg, is highly spoken of by the *Canada Farmer*. In form, it is much like the Wagener, but has the coloring of the Spy. The apple is of medium size, having a yellow flesh, which is very tender and very juicy, of good quality, if not best, presenting a blending of the flavor of the Wagener and Spy. We learn that the Fruit Growers' Association have made arrangements with Mr. Arnold to grow a sufficient number of trees of this variety to enable them to distribute one to each member as soon as they can be raised.—*American Rural Home.*



Dioscorea Illustrata.



Lilium Trigrinum Flore Pleno.

Editor's Portfolio.

Postage Prepaid.

After January first next, all postage on periodicals is required, by act of Congress, to be prepaid by publishers before copies are mailed. Subscribers therefore must pay postage to publishers, and not as formerly, each quarter, to their local postmasters. The advance postage on *The Horticulturist* will be ten cents per year, which must be added to all remittances of subscription.

A New and Valuable Pear.

A first-class seedling pear from the Bartlett (known in Europe as the Williams' Bon chretien) has been raised by M. Morel, of Vaise-Lyon, France, and is figured in a recent colored frontispiece of *The Revue Horticole.* The fruit is of good size, and handsome in shape and color; the flesh is white, fine-grained, melting, juicy, and agreeably acidulous; ripening from the end of September to the middle of October or later. The tree is an abundant bearer, and it also does well on the Quince. It is recommended by M. Carriere as being in every respect of first-rate quality. We call special attention of American nurserymen to the propriety of introducing it into America.

Colossal Asparagus.

A correspondent of *The Gardener's Chronicle.* who tried the Conover's Colossal Asparagus, although with some incredulity, at last is forced to say: "In point of size, this is a *colossal* variety, it far exceeds the *Giant* or *Battersea* of the same age, and under the same cultivation. In fact, the principal part of the stems on the *one year old beds* of Conover's, are as stout as those on the *oldest* and best beds of the old kinds. For forcing, Conover's Colossal will be an acquisition; it comes earlier than the other kind."

Another Humbug.

The Gardener's Chronicle favors its readers with a laughable description of a new humbug, just turned up there, and imported from America. (We never heard of it here, although it might possibly have appeared in places remote from the head centres. Most of the humbugs palmed off on Americans, are engineered by *foreigners* from *England, France* and *Prussia.*) This is the title of the label:

Veni, Vidi, Multum in Parvo.

THE COREAN

PASA MA-SAKI,

OR THE

BLOOM OF PARADISE.

This sweet and beautiful scented grass plant sheds its sweet fragrance over the house all the year round. The seeds can be planted any time in the year, in dirt, sponge or cotton in a tumbler.

It does not give out its beautiful fragrance under ten or twelve days, and lasts five months before going to seed; water as other plants.

Price of packages, 15 cts., or 2 for 25 cts.; 800 seeds in each package.

Rules for Planting.

In sponge, wet well; in dirt, sprinkle the dirt over them, and water as other plants.

An Extraordinary Pear Tree.

A photograph has been forwarded to England, which has aroused the astonishment of their distinguished men. It is taken of a branch of pears grown from a tree on the ranch of Mr. Kercheval, near Sacramento, Cal., The branch was 4 feet 6 inches long; carried 265 pears (most of which were about 5 inches in length), the whole weighing about 110 lbs.

American Passion for Flowers.

It is stated that more bouquets (not buttonhole) are made up in a single month in the city of New York than in the course of a whole year in the city of London. This is, perhaps, a trifling exaggeration, but Mr. Dickens said very much the same thing in writing of his American experience several years ago, so that it is evident that our love for flowers is sufficiently conspicuous to attract the attention of foreigners.

Blue Glass.

The Philadelphia experiments of General Pleasanton upon the organic influence of the violet ray have been repeated in France, and M. A. Poey has communicated to M. Elie de Beaumont, a letter on the influence of violet ray upon the growth of the vine, pigs and cattle.

Prices of Strawberries.

A Cincinnati marketer gives the following prices on a certain day of the different varieties of the strawberry in that city, showing the relative estimation in which they are held, either for their fine appearance or good quality; Jucunda, 50 cents (very showy); Triomphe de Gand and Seth Boyden, 40 cents; Kentucky and Agriculturist, 30 to 35 cents; Charles Downing, 20 cents; and Wilson's Albany, 10 to 15 cents.

Gardening in Florida.

A lady in Lake City, Fla., has growing in her garden a genuine cork tree thirty feet high, the bark on which is sufficiently thick to make bottle corks. There is also in the same garden a genuine black pepper bush, which yields regularly a full crop of berries.

Cultivation of Tropical Fruit.

The South says: We understand that a company has been formed for the cultivation of tropical fruit, and is in treaty for a tract of 640 acres of land at Biscayne Bay, at the southeastern extremity of Florida. This tract was a military post during the Florida war, and has growing upon it a large number of fruit trees, viz.: Banana, Plantain, Cocoanut, Orange, Lime, Lemon, Bread-fruit, Date, Guava, Mango, and others too numerous to mention. The capital of the company will be $10,000, $7,000 of which is already subscribed. Frost never reaches this place, the climate is delightful, winter or summer, and perfectly healthy.

Kansas Fruits.

The following is a perfect copy of a letter from a correspondent of *The Department of Agriculture*. It will be seen that this "inside view, puts Kansas fruits in very different lights, from the puffed celebrity gained by exhibitions at Eastern fairs, Leavenworth. "We had no apples worth counting. The State Society took some premiums in the East, but it was a mere "trick of business." They solicited a few good specimens from young orchards in favorable localities and artfully *showed them up*. In truth our apples are very knotty and poor, and not one-tenth of a product; not one-fourth of a supply for the people here."

Agave Univittata.

This is now flowering for the first time in Europe, at the greenhouse of Mr. Peacock, Sudbury House, Hammersmith, England.

Arbor Day.

In Nebraska, they have what is called "Arbor Day." The State Board of Agriculture gives a premium of $100 to the County Agricultural Society of the county in which the greatest number of trees are planted on the 10th day of April, and $25 to the individual planting the greatest number of trees on that day.

Gov. Furnas, in a letter to an exchange, says: A smart little boy, aged eight years, named Calvin Sigel Hall, Schuyler, Colfax county, Nebraska, went alone two miles from home, to the Platte river, dug up nine hundred and eighty young cottonwood trees, took them home and planted them all in one day, and by himself! Our board has awarded him a special premium of $25.

A letter from Schuyler on the subject, of date July 13, says, "the trees are all growing nicely."

Lime for Peach Trees.

The Hon. John M. Clayton, of Delaware, who was a large and successful peach grower, found lime the best manure he ever applied to peach trees. He scraped the dirt off and applied from three to a dozen shovelfuls of lime fresh from the kiln to the naked roots. It killed the grubs and favored the growth of fruit. The editor of *The Plow* said, "certainly we have never seen more healthy looking trees than those of farmer Clayton." Sometimes one can kill the larvæ of the curculio under peach trees by a heavy dressing of lime recently slaked.

The Temperature to Germinate Seeds.

Seeds of hardy flowering plants require a temperature in the soil of about 50° or 60° to germinate well, and tender plants 75° and upwards. These facts should be borne in mind by those who would succeed with annual flowers, and the seeds be sown at corresponding periods in spring.

Strawberries.

At the discussions of the Illinois Horticultural Society, two cultivators of the strawberry pronounced the Wilson and Green Prolific as the two best and most productive sorts. Others objected to the Green Prolific as being too soft. It was stated that the Colfax is so rampant a grower that it kills all the weeds and takes care of itself.

Mulching Pear Trees.

A writer in *The Tribune* mulches his pear orchard over the whole surface with salt hay, in June, and rakes it up in November. This gives fine crops, and protects the fallen fruit.

Lamentable Ignorance.

S. B. Parsons, in his address before the New York Rural Club, said, he had known an intelligent city lawyer call a dahlia a rose. John J. Thomas, says, as an offset to this, that he has known a country doctor call a poppy a rose at a public exhibition.

Gardening as an Art.

Mr. Parson also in his address, said: "Gentlemen of large income, with country places, the proper management of which would give more pleasure to a whole family than anything else, are unwilling to pay more than $800 or $1,000 per year for a good gardener, whose knowledge is the work of half a lifetime. They will give $3,000 to a bookkeeper, whose knowledge can be acquired in a year; they will expend one to five thousand dollars in a camel's hair shawl or a pair of horses, and yet would think themselves very extravagant if they gave $2,000 per year to a skillful gardener, who could produce for their use Muscat grapes and all other luscious fruits, and who could make their grounds and gardens like a veritable paradise. Once establish the fact that a skillful gardener can be sure of $2,000 or $3,000 per year, and numerous young men would give their education that direction. Wealthy men, also, who expect, to leave their sons a horticultural education, both as a means of producing enjoyment for themselves, and as a profession upon which to fall back in case of disaster. Young men so educated will never become blase; the world is for them too full of delightful capabilities."

Wild Goose Plum.

The late J. S. Downer said of this plum that the flavor, if not equal to some of the popular varieties, was nevertheless good; that it is not proof (as often asserted) against the curculio, but the puncture does not seem to injure it; that it comes into early bearing and gives abundant crops every year, having failed but once with him in ten years. In Kentucky it ripens the latter part of June. The fruit is large, handsome, pinkish red.

Easter Flowers.

The flowers displayed in the churches of New York during Easter day, were magnificently costly. Hundreds of dollars were expended in private houses, and thousands in the churches. In a list of over one hundred Protestant, Episcopal and Catholic churches on Easter Sunday, not less than $20,000 were expended for flowers alone. The displays at Christmas and New Years, are very fine, but not quite as much effort is spent as on Easter occasions. It is one of the most beautiful, pure and tasteful forms of celebration.

Tetofsky Apple.

A. G. Tuttle, of Baraboo, Wis., is mentioned by *The Western Farmer*, as possessing trees of this variety already bearing fruit, although not more than two years old. This early bearing quality together with the hardiness of the tree, and its early ripening, as well as beauty of fruit, will commend it particularly to thousands of Northwestern fruit growers, in sections now destitute of apples. Additional testimony is also given by *The Vermont Farmer* adorsing its cultivation in northern cultivation. This variety will be found to be a desirable one to plant where the Early Harvest does not succeed well. In point of richness of flavor it is not quite equal, but we are sometimes obliged to accept some deficiency of character that we may have fruit at all. It begins to bear fruit at two and three years of age, and yields very large crops every year. It is a very handsome apple, of medium size, beautifully striped with red on a yellow ground and covered with a light bloom. The flesh is white and juicy, with a pleasant, slightly acid

flavor. It makes a capital cooking apple. We strongly advise those who live in the colder parts of the State to give this apple a trial, believing that they will find it the best early ripening sort for their climate. Ripe early in August.

Killing Insects by the Gallon.

A writer in a French horticultural journal relates this suggestive experience: "After sunset I place in the center of my orchard an old barrel, the inside of which I have previously well tarred. At the bottom of the barrel I place a lighted lamp. Insects of many kinds, attracted by the light, make for the lamp, and while circling round it strike against the sides of the barrel, where, meeting with the tar, their wings and legs become so clogged that they fall helpless to the bottom. In the morning I examine the barrel, and frequently take out of it ten or twelve gallons of cockchafers, which I at once destroy. A few pence worth of tar employed in this way will, without any further trouble, be the means of destroying innumerable numbers of these insects, whose larvæ are amongst the most destructive pests the gardener or farmer has to contend against."

A Beautiful Bed of Geraniums.

According to *The American Rural Home*, there was this summer in Rochester, a geranium bed, approaching perfection as near as any ever seen. This bed undoubtedly owes its great success to the care exercised in propagating the plants, in assorting and transplanting them, and in the care which they receive all through the season. Cuttings of the finest plants of the Gen. Grant variety are made during the latter part of summer. These are kept in the greenhouse until the latter part of May, when they are assorted, and the most vigorous ones used. The bed is oval, or palm-leaf shaped, highest in the middle, and well manured with rotten stable manure, and decayed leaves. The bed is kept clean and mellow all through the season, and the fading flowers removed. The result is a mass of brilliant scarlet bloom from June to October.

Kew Gardens.

The number of visitors on one day, Monday, June 2, at the Royal Kew Gardens, near London, England, was no less than 59,152. Good order prevailed everywhere, and not a plant was damaged willfully or by accident. Such an audience to see plant exhibition only, never was heard of in America, although over 105,000 persons have been known in a single day to enter the fair grounds at St. Louis.

Winter Seckel Pear.

Specimens have been shown us from a subscriber in Central New York, of a seedling from the Seckel pear, but ripening as a winter variety; has a fine quality, though not quite as sweet or sprightly as the Seckel, yet more so than the Lawrence; firm flesh, a good keeper, russety color, brighter and better in this respect than the Seckel, and seems to be a very desirable acquisition. Doubtless there are more Winter Seckels scattered through the United States, yet this is stated to be a genuine seedling, and the fruit is really fine.

The American Garden.

The Flower Garden, originaly published as a quarterly, at $1 per year, by Beach, Son & Co., of Brooklyn, N. Y., has been changed in character, and, with the above new title, appears as a new horticultural journal, monthly, conducted by James Hogg, editor. The first number of any new journal is not always the best, and we doubt not Mr. Hogg will see the time when he can produce numbers, besides which this will be considered of little consequence. Almost every horticultural journal wins its way by some devotion to *special branches* of horticultural lore; we will, therefore, watch with interest the field which *The American Garden* will mark out for itself, and how it will fill it.

Error.

In Frontispiece for September, the title should read, *View of Sydenham Palace, London, England.* Two cuts were ordered, one of Kew Gardens and one of Sydenham Palace, and by error, wrong cut used with the above title.

Popular Science.

Australian Flora. — *The Brisbane Courier* publishes the official telegram from Mr. Walter Hill, the government botanist, dated from Cardwell, and received by the Queensland secretary for lands:

"We have examined the Mulgrave, Russell, Mossman, Daintree and Hull rivers, and have been more or less successful in finding suitable lands for sugar and other tropical and semi-tropical productions. The ascent of the summit of Bellenden Kerr was successfully made by Johnstone, Hill, and eight troopers. At two thousand five hundred feet in height, we observed an undescribed tree with crimson flowers, which excels the *Poiniana regia*, *Colvillea racemosa*, *Lagerstræmia regia*, and *Jacaranda mimosifolia;* at two thousand four hundred feet, a tree-fern which will excel in grandeur all others of the arboreous class; a palm tree at the same height which will rival any of the British-Indian species in gracefulness. On the banks of the Daintree we saw a palm-cocoa which far exceeds the unique specimens in the garden of the same genera from Brazil, in grandeur and gracefulness. While cutting a given line on the banks of the river Johnstone, for examining the land, an enormous fig tree stood in the way, far exceeding in stoutness and grandeur the famous giants of California and Victoria. Three feet from the ground it measured one hundred and fifty feet in circumference; at fifty-five feet where it sent forth giant branches, the stem was nearly eighty feet in circumference."

Plantains as Food.—Among the starch-producing plants extensively cultivated for food in tropical countries, and which are destined to add immensely to the food-supply of colder climates, are yams, bread-fruit and bananas, including the variety known as plantains. The last family rivals the sago-palm in affording the maximum amount of food for the minimum amount of labor. The yield to the acre is in bulk forty-four times that of the potato, and the proportion of starch is somewhat greater. The fruit is also richer in other elements of nutriment, so that the meal prepared by drying and grinding the plantain core resembles the flour of wheat in food value. It is easily digested, and in British Guiana is largely employed as food for children and invalids. The cost of preparing the food can not be great, and the supply might be unlimited. The proportion of starch is seventeen per cent.; in bread-fruit it is about the same; in yams it rises to twenty-five per cent., but is hard to extract, owing to the woody character of the roots.

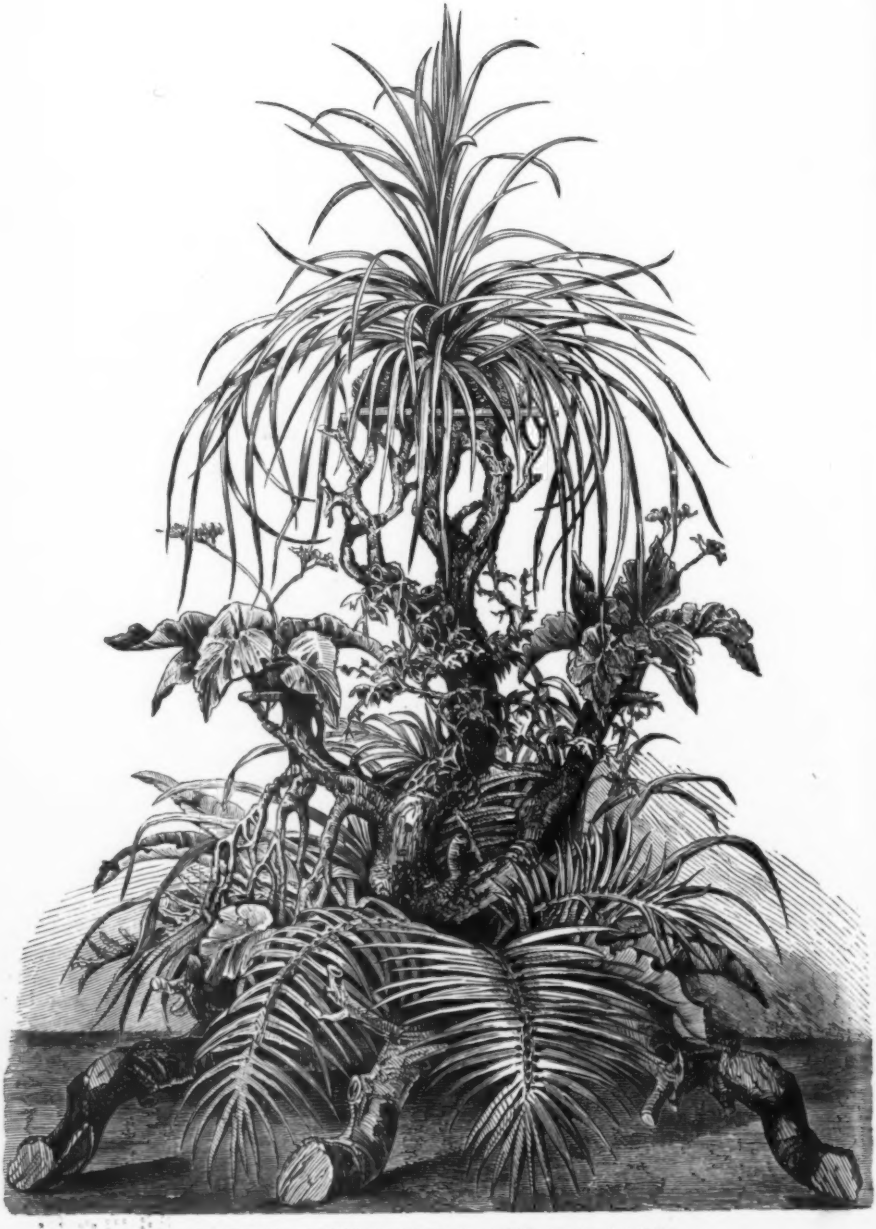
Flowers in Mexico.—One thing which strikes one pleasantly in Mexico is the wonderful abundance of flowers. All the year round crowds of Indians sit at the street corners in the early morning, making and selling for a real (sixpence) bouquets, which in London or New York could not be got for a guinea. Roses, verbenas, heliotropes, and carnations grow like weeds; and besides the made-up bouquets the Indians bring down on their backs from the mountains, loads of the Flor de San Juan (bouvardia), a flower like a white jessamine, and for a quartilla (three half pence) you can buy an armful of it, which will scent a whole house for a week. Our rooms were always fragrant with the bouquets which came in fresh every two or three days, and sometimes round the hanging baskets in the windows a lovely humming-bird would hover, and dip his long bill into the flowers for honey.—*The Garden.*

Great Old Oaks.—The Wadsworth oak, at Genesee, N. Y., is said to be five centuries old, and twenty-seven feet in circumference at the base. The massive, slow-growing live oaks at Florida are worthy of notice on account of the enormous length of their branches. Bartram says: "I have stepped fifty paces in in a straight line from the trunk of one of these trees to the extremity of the limbs." The oaks of Europe are among the grandest of trees. The Cowthorpe tree is seventy-eight feet in circuit at the ground, and is at least 1,800 years old. Another, in Dorsetshire, is of equal age. In Westphalia is a hollow oak which was a place of refuge in the

troubled times of mediæval history. The great oak at Saintes, in Southern France, is ninety feet in girth, and has been ascertained to be 2,000 years old. This monument, still or recently flourishing, commemorates a period which antedates the first campaign of Julius Cæsar.—*Science Monthly.*

Remedial Action of the Ailanthus.—The ailanthus, as an ornamental and shade tree, has of late years gone into disrepute on account of the offensive effluvium of its male blossoms, and its planting in Washington was positively forbidden by an act of Congress—at least an appropriation for the District of Columbia, made some years ago, was granted upon the condition that no ailanthus trees should thereafter be planted in the city of Washington. The tree is, however, one of very great value as a timber tree, and is highly recommended, for growth upon the Western prairies, as its development is extremely rapid, and the wood is equal to chestnut in mechanical properties. It is one of the largest trees known, being said to attain a height of 300 feet in China. Very little attention has been directed to its medicinal virtues; but according to Dr. Robert of the French naval fleet in the waters of China and Japan, the bark of the root, in the form of a powder, is more efficient in the treatment of dysentery than ipecac, calomel, astringents, opiates, etc. For this purpose, one part of the bark of the root is cut into very fine pieces and pounded up in a mortar, to which one and a half parts of warm water are added. The whole is to be allowed to stand for a sufficient time to soften the bark, and it is then strained through a piece of linen. The infusion is administered in doses of a tablespoonful morning and evening, either pure or in a cup of tea. This is to be continued for three days under a very strict dietary regimen. After that, bread and milk may be given, and subsequently, ordinary diet. If at the end of eight days a cure is not effected, the treatment may be renewed. This substance is extremely bitter, and its administration frequently produces nausea. In Dr. Robert's experience, a complete cure was almost always brought about within eight days; in only one instance was it necessary to renew the application.

The Effect of Camphor on Seeds—Curious Experiments.—Some curious and all but forgotten experiments of much interest to agriculture and gardening, observes a London paper, have lately been revived by a German savant. Very many years ago it was discovered and recorded that water saturated with camphor had a remarkable influence upon the germination of seeds. Like many another useful hint, the stupid world took no notice of this intimation; but a Berlin professor came across the record of it, and he appears to have established the fact that a solution of camphor stimulates vegetables as alchohol does animals. He took seeds in various sorts of pulse, some of the samples being three or four years old, and therefore possessing a slight degree of vitality. He divided these parcels, placing one moiety of them between sheets of blotting-paper simply wetted, and the other under strictly similar conditions between sheets soaked in the camphorated water. In many cases the seeds did not swell at all under the influence of the simple moisture, but in every case they germinated where they were subjected to the camphor solution. The experiment was extended to different kinds of garden seeds, old and new, and always with the same result of showing a singular awakening of dormant vitalism and a wonderful quickening of growth. It also appears from the professor's researches that the young plants thus set shooting continued to increase with a vigor and vivacity much beyond that of those which are not so treated. On the other hand, when pounded camphor was mixed with the soil, it appeared to exercise a rather bad effect upon the seeds. The dose in this latter case was possibly too strong. At all events there is here a line of inquiry well worth following up by seedsmen and gardeners; and even farmers might try how far wheat and barley would profit from the strange property which seems to be possessed by this drug over the latent life of vegetable germs.



RUSTIC FLOWER STAND FOR THE LAWN.